Panasonic®

Digital Disk Recorders
Operating Instructions

WJ-HD309

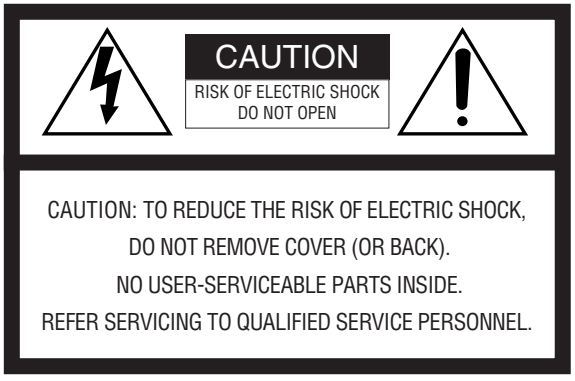
Model Nos. WJ-HD316

Before attempting to connect or operate this product,
please read these instructions carefully and save this manual for future use.

ENGLISH VERSION

Caution:

Before attempting to connect or operate this product, please read the label on the bottom.


CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN
CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK,
DO NOT REMOVE COVER (OR BACK).
NO USER-SERVICEABLE PARTS INSIDE.
REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

SA 1965

The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

SA 1966

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

Power disconnection. Unit with or without ON-OFF switches have power supplied to the unit whenever the power cord is inserted into the power source; however, the unit is operational only when the ON-OFF switch is in the ON position. The power cord is the main power disconnect for all units.

For U.S.A

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications.
Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

FCC Caution: To assure continued compliance, (example - use only shielded interface cables when connecting to computer or peripheral devices). Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

The serial number of this product may be found on the top and bottom of the unit.
You should note the serial number of this unit in the space provided and retain this book as a permanent record of your purchase to aid identification in the event of theft.

Model No. _____

Serial No. _____

WARNING: To prevent fire or electric shock hazard, do not expose this appliance to rain or moisture. The apparatus shall not be exposed to dripping or splashing and that no objects filled with liquids, such as vases, shall be placed on the apparatus.

IMPORTANT SAFETY INSTRUCTIONS

1) Read these instructions.

2) Keep these instructions.

3) Heed all warnings.

4) Follow all instructions.

5) Do not use this apparatus near water.

6) Clean only with dry cloth.

7) Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.

8) Do not use near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.

9) Do not misuse the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding-type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.

10) Protect the power cord from being stepped on or pinched particularly at plugs, convenient receptacles and the points where they exit from the apparatus.

11) Only use attachments/accessories specified by the manufacturer.

12) Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-overs.

13) Unplug this apparatus during lightning storms or when unused for long periods of time.

14) Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as when the power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

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PREFACE

The Digital Disk Recorders WJ-HD316/309 are designed for use within a surveillance system and are a combination of a hard disk recorder and a video multiplexer (16-input for the WJ-HD316, 9-input for the WJ-HD309).
The digital hard disk recorder is a recording device using a hard disk drive to record camera pictures instead of using videotapes so that pictures recorded by repeated overwriting will not cause deterioration of the recorded picture quality. Up to 16 cameras can be connected to the WJ-HD316 directly (up to 9 cameras to the WJ-HD309) and it is possible to record their camera pictures. It is also possible to display four or more camera pictures on a single monitor, to switch camera pictures, and to operate cameras using this unit.

FEATURES

Various Recording Functions

- **Multi-Recording**
  It is possible to perform multiple recording using a single digital disk recorder even if the operating environments are different, for example, recording pictures of cameras in different places at different times.

- **Schedule recording**
  It is possible to perform recording automatically at a scheduled time on a designated day of the week. Schedules can be set on each camera.

- **Emergency Recording**
  In case of emergency, emergency recording will be given a higher priority than other recording modes by operating an external switch.

- **External Timer Recording**
  It is possible to perform recording automatically using an external timer.

- **Event Recording**
  At an event occurrence, such as when an alarm signal is supplied, the recording mode (quality and recording rate) can be changed to high quality to record pictures.

- **Motion Detection Function (VMD)**
  It is possible to start recording automatically when motion is detected in a shooting area.

Frame Switcher Function

- It is possible to display pictures of four or more cameras on a single monitor (multi-screen) splitting the monitor screen into 4, 7, 9, 10, 13, or 16 sections using the WJ-HD316, and into 4, 7, or 9 sections using the WJ-HD309.
  While monitoring a multi-screen, each camera picture will be displayed as a moving image.

Remote Operation via Network

It is possible to operate this unit using a PC connected to a LAN (Local Area Network) or the Internet by the featured network function.

Security Function and Reliability

- Authentication function (registration of ID and password) allows users access to a predetermined selection of the available functions. Up to 32 users can be registered.

- If alteration of a recorded image data is made for any reason, the alteration alert function will announce it.

- If a hard disk crashes, the backup function[*1], the mirroring function[*2] and the RAID 5 function[*3] prevent there being any data loss.

[*1]: Only when the recommended DVD-RAM drive, DVD-R drive or CD-R drive is used
[*2]: The mirroring function does not work with an external hard disk drive such as an extension unit.
[*3]: To use the RAID 5 function, an optional extension unit is required.

Transmission with Coaxial Cable, PS·Data and RS485 Compatible

- It is possible to control a Panasonic combination camera such as the WV-CS850 using only a coaxial cable but not other devices. Using a coaxial cable also compensates for transmission loss.
- It is easy to establish the surveillance system by connecting a PS·Data compatible system controller and peripherals.

PRECAUTIONS

- **Refer all work related to the installation of these products to qualified service personnel or system installers.**

- **Do not operate the appliances beyond their specified temperature, humidity, or power source ratings.**
  Use the appliance at temperatures within +5 °C - +45 °C (41 °F - 133 °F) and humidity below 85 %.
  The input power source for this appliance is 120 V AC 60 Hz.

- **Handle the appliance with care.**
  Do not strike or shake, as this may damage the appliance.

- **Do not strike or give a strong shock to the unit.**
  It may cause damage or allow water to enter the unit.

- **Built-in backup battery**
  Before the first use, charge the built-in backup battery by turning on the power for 48 hours or more.
  If it is not charged enough, in a case where the power goes down, the internal clock may keep bad time or the operative condition may be different to that before the electric power failure.
  The built-in battery life is approximately 5 years. Ask the shop where you purchased the unit when replacement of the battery is required.

- **Cooling Fan**
  Turn the power off when cleaning the unit. Otherwise it may cause injuries.
  Replacement costs of the cooling fan are not covered by the warranty even if it needs to be done within the warranty period. Consult your dealer for servicing.

- **Cleaning**
  Turn the power off when cleaning the unit. Otherwise it may cause injuries.

  Do not use strong or abrasive detergents when cleaning the appliance body.
  Use a dry cloth to clean the appliance when it is dirty.
  When the dirt is hard to remove, use a mild detergent and wipe gently.

- **Built-in hard disk drives**
  Hard disk drives are vulnerable to vibration. Handle them with care.
  It is possible to damage them if they are moved while their motors are still running. Do not move them just after turning the power of them on or off (for around 30 seconds).
  Hard disk drives are perishable. They will need to be replaced after around 20 000 - 30 000 hours of operation in case they are used at temperature of 25 °C (77 °F).
  Replacement costs of the hard disk drives are not covered by the warranty even if it needs to be done within the warranty period. Consult your dealer for servicing.
  Set all the hard disk drives as master using the jumper pin. Refer to the diagram attached on the HDD or the operating instructions of the HDD for the jumper pin assignment.
  When hard disk drive trouble occurs, replace it immediately. Consult your dealer for servicing.
  When replacing the hard disk drives, take notice that the following.
  Do not detach the hard disk drives or the cables connecting the unit and the front cover while the HDD1/HDD2 indicators are lit or for around 30 seconds after the indicators go off.
  Protect the hard disk drives from static electricity.
  Do not stack them, or keep them upright.
  Do not use an electric screwdriver to fix them. (Tightening torque: Approx. 0.49 N · m (5 kgf · cm))
  Avoid rapid changes of the temperature/humidity to prevent condensation. (Acceptable change: within 15 °C/h (59 °F/h))

- **Indication label**
  Refer to the indication labels placed on the top and bottom of the unit as to the indications of equipment classification and power source, etc.

- Avoid placing receptacles that contain liquids such as water near the unit.
  If liquid spills onto the unit, it may cause fire or an electric shock.

- Do not expose the unit to water or moisture, or try to operate it in wet areas.

- Prevent condensation from forming on the surface of the hard disk.
  Wait until the dew evaporates in any of the following cases.
  The recorder is moved to a place significantly different in temperature or humidity.
  The recorder is moved out of an air-conditioned room.
  The recorder is placed in an extremely humid place.
  The recorder is placed in a room where a heater has just been turned on.

- We recommend that you make a note of your settings and save them. This will help when you are required to change the system configuration, or when unexpected trouble or failure occurs.

TRADEMARKS AND REGISTERED TRADEMARKS

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- Microsoft, Windows and Windows XP are registered trademarks of Microsoft Corporation in the U.S. and/or other countries.

- Other names of companies and products contained in these operating instructions may be trademarks or registered trademarks of their respective owners.

- Distributing, copying, disassembling, reverse compiling, reverse engineering, and also exporting in violation of export laws of the software provided with this product, is expressly prohibited.

About These Operating Instructions
There are 3 operating instructions for the WJ-HD316/WJ-HD309 as follows.

- Operating Instructions (book, these operating instructions)
- Network Operating Instructions (PDF)
- Network Setup Instructions (PDF)

These "Operating Instructions" contain descriptions of how to operate this unit with the buttons on the front panel.
Refer to the "Network Operating Instructions" on the provided CD-ROM for descriptions of how to operate this unit from a PC.
Refer to the "Network Setup Instructions" on the provided CD-ROM for descriptions of how to perform the required settings and how to connect to other devices.
Adobe® Reader is required to read these operating instructions (PDF) on the provided CD-ROM. When the Adobe® Reader is not installed on the PC, download the latest Adobe® Reader from the Adobe web site and install it.

LIMITATION OF LIABILITY

IN NO EVENT SHALL MATSUSHITA ELECTRIC INDUSTRIAL CO., LTD. BE LIABLE TO ANY PARTY OR ANY PERSON, EXCEPT FOR REPLACEMENT OR REASONABLE MAINTENANCE OF THE PRODUCT, FOR THE CASES, INCLUDING BUT NOT LIMITED TO BELOW:

(1) ANY DAMAGE AND LOSS, INCLUDING WITHOUT LIMITATION, DIRECT OR INDIRECT, SPECIAL, CONSEQUENTIAL OR EXEMPLARY, ARISING OUT OF OR RELATING TO THE PRODUCT;

(2) PERSONAL INJURY OR ANY DAMAGE CAUSED BY INAPPROPRIATE USE OR NEGLIGENT OPERATION OF THE USER;

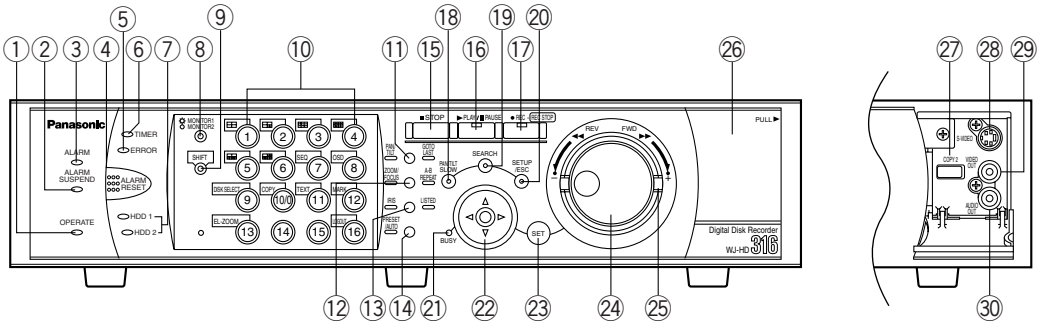
(3) UNAUTHORIZED DISASSEMBLE, REPAIR OR MODIFICATION OF THE PRODUCT BY THE USER;

(4) ANY PROBLEM, CONSEQUENTIAL INCONVENIENCE, OR LOSS OR DAMAGE, ARISING OUT OF THE SYSTEM COMBINED BY THE DEVICES OF THIRD PARTY.

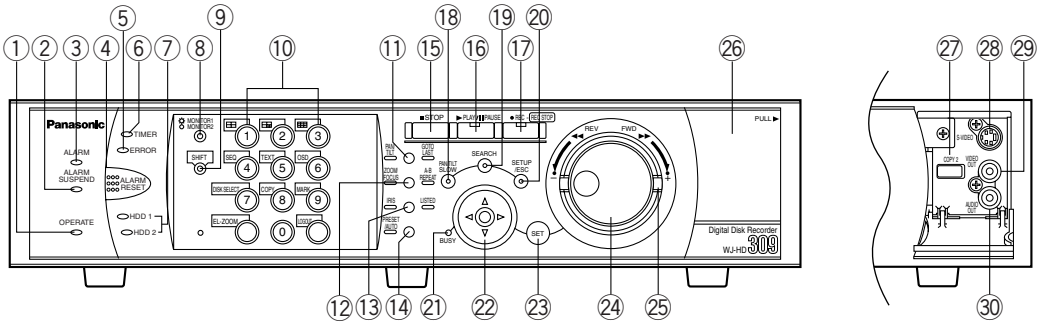
MAJOR OPERATING CONTROLS AND THEIR FUNCTIONS

■ Front View

[WJ-HD316]



[WJ-HD309]



① **Operate Indicator (OPERATE)**
Lights up when the power is turned on.

② **Alarm Suspension Indicator (ALARM SUSPEND)**
Lights up when the alarm suspension mode is selected.

③ **Alarm Indicator (ALARM)**
Blinks when an alarm occurs, and lights steadily when the activated alarm is reset automatically.
To turn this indicator off, press the ALARM RESET button.

④ **Alarm Reset Button (ALARM RESET)**
Pressing this button cancels alarm activation, and returns the system to the condition before the alarm was activated.

⑤ **Error indicator (ERROR)**
Blinks orange when an error occurs that will not keep the unit from running.
Blinks red when an error occurs that may cause the system to go down.
Refer to page 56 for further information about error/warnings.

⑥ **Timer Indicator (TIMER)**
Lights up when the schedule recording is set, and blinks while the schedule recording is being performed.

⑦ **HDD Access Indicators (HDD1/HDD2)**
Blinks when the HDD1 or the HDD2 is accessed respectively.

⑧ **Monitor Switch button (MONITOR1/MONITOR2)**
Pressing this button switches the monitor. This button lights up when monitor 1 is selected, and goes off when monitor 2 or the VGA monitor is selected.

⑨ **Shift Button (SHIFT)**
Toggles the functions of the camera selection buttons.

⑩ **Camera Selection Buttons ([1] - [10/0], [11] - [16] for the WJ-HD316, [1] - [9], [0] for the WJ-HD309)**
Pressing a button displays live or playback images of the selected camera. The LED in the button indicates the status as follows.

Green: When a button is lit green, the currently displayed image on the monitor is live from a respective camera.

Orange: When a button is lit orange, the image from a respective camera is recorded.

Blue: When a button is lit blue, the currently displayed image on the monitor is live from a respective camera and is also recorded.

When the shift button is lit, these buttons work as the toggled function buttons.
(The buttons available as the toggled function buttons will light green when the shift button is lit.)

⑪ **Pan, Tilt, Latest Recorded Image Playback Button (PAN/TILT, GO TO LAST)**
Pans/tilts a selected camera, or plays back the latest recorded image.
(Refer to page 41 and 23 respectively.)

⑫ **Zoom, Focus, A - B Repeat Button (ZOOM/FOCUS, A-B REPEAT)**
Zooms in/out, adjusts focus, or repeats playback of recorded images between two designated points.
(Refer to page 41 and 24 respectively.)

⑬ **Iris, Listing Button (IRIS, LISTED)**
Adjusts iris, or enables/disables the filtering playback.
(Refer to page 42 and 28 respectively.)

⑭ **Preset, Auto Pan Button (PRESET/AUTO)**
Moves a camera to the preset position, or activates the auto function.
(Refer to page 42 and 44 respectively.)

⑮ **Stop Button (STOP)**
Stops playback.

⑯ **Play/Pause Button (PLAY/PAUSE)**
Plays recorded images, or pauses playback.

⑰ **Record Button (REC/REC STOP)**
Starts recording. To stop recording, press this button down for 2 seconds or more.

⑱ **Slow Button (SLOW)**
Pans/tilts a selected camera slowly.

⑲ **Search Button (SEARCH)**
Displays the searching menu.

⑳ **Setup, Escape Button (SETUP/ESC)**
Displays the setup menu, or turns back to a previous page of the setup menu, etc.

㉑ **Busy Indicator (BUSY)**
Lights when a selected camera was not available to operate because another user is operating it using a controller or a PC via a network. In this case, wait until this indicator goes off.

㉒ **Arrow Buttons (▼▲◄►)**
Adjusts zooming/focus, or moves the cursor on the setup menus and the searching menu.

㉓ **Set Button (SET)**
Works differently depending on the situations listed below:
- Plays recorded images at the current playback speed when this button is pressed during fast playback.
- Registers preset positions of cameras.
- Activates the auto focus function.
- Sets the alarm suspension mode on/off.
- Determines the setting of parameters on the setup menus.

㉔ **Jog Dial**
Works differently depending on the situations as follows:
- Plays recorded images frame by frame when this dial is rotated during pausing playback.
- Skips playback time when this dial is rotated during playback at normal speed.
- Moves the cursor on the searching menu or the thumbnail menu.
- Selects a parameter setting or a character on the setup menus.

㉕ **Shuttle Ring**
Works differently depending on the situations as follows:
- Plays fast when this dial is rotated during playback at normal speed.
- Turns the searching menu pages or the thumbnail menu pages.

㉖ **Connectors Cover**

㉗ **Copy Port (COPY2)**
Connect a recommended DVD-RAM drive, CD-R drive or DVD-R drive with this port.

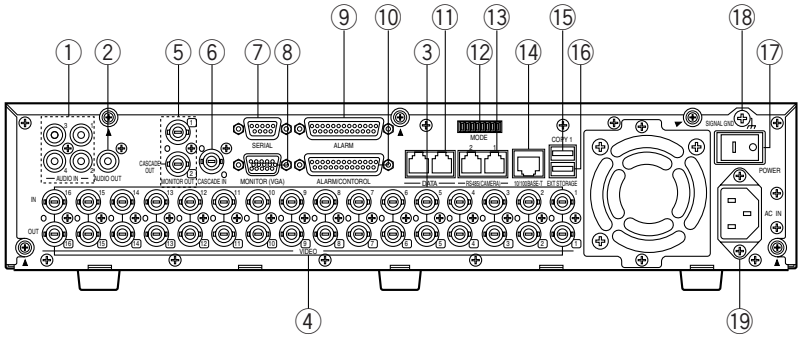
㉘ **S-Video Output Connector (S-VIDEO)**
Connect the S-video input connector of a VCR with this connector. The same video signal supplied to the MONITOR OUT2 connector on the rear panel will be supplied to this connector.

㉙ **Video Output Connector (VIDEO OUT)**
Connect the video input connector of a VCR with this connector. The same video signal supplied to the MONITOR OUT2 connector on the rear panel will be supplied to this connector.

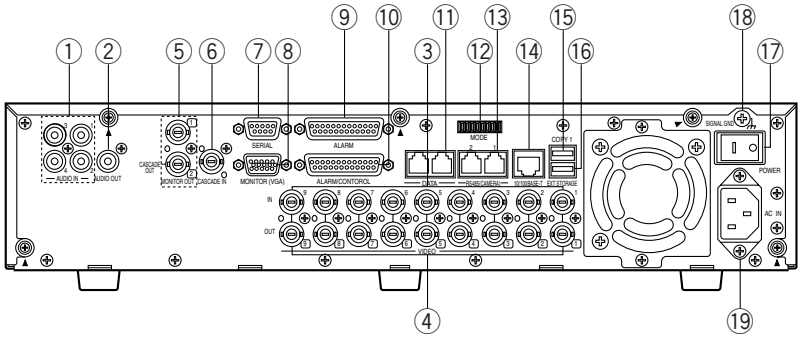
㉚ **Audio Output Connector (AUDIO OUT)**
This connector, for an RCA standard jack, supplies an unbalanced –10 dBV, 600 Ω line output audio signal to an external device.
Recorded audio will be supplied from this connector during playback.
The same audio signal supplied to the AUDIO OUT connector on the rear panel will be supplied to this connector.

■ Rear View

[WJ-HD316]



[WJ-HD309]



① **Audio Input Connectors (AUDIO IN 1 - 4)**
These connectors, for RCA pin jacks, accept an unbalanced –10 dBV, 10 kΩ line input audio signal supplied from an external device such as a microphone amplifier.

② **Audio Output Connector (AUDIO OUT)**
This connector, for an RCA standard jack, supplies an unbalanced –10 dBV, 600 Ω line output audio signal to an external device.
Recorded audio will be supplied from this connector during playback.

③ **Video Input Connectors (CAMERA IN 1 - 16 for the WJ-HD316/CAMERA IN 1 - 9 for the WJ-HD309)**
Connect system cameras or combination cameras to these BNC connectors.
A 75 Ω termination is made unless the video output terminal is connected.
To connect combination cameras, connect them to the CAMERA IN 1 - 8 connectors of the WJ-HD316, or the CAMERA IN 1 - 6 of the WJ-HD309 (accept coaxial communication).

④ **Video Output Connectors (CAMERA OUT 1 - 16 for the WJ-HD316/CAMERA OUT 1 - 9 for the WJ-HD309)**
These BNC connectors supply video signals looped through the video input connectors.
Note: Video signals will not be supplied from the CAMERA OUT 1 - 8 connectors (CAMERA OUT 1 - 6 connectors for the WJ-HD309) if the power of the unit is off.

⑤ **Monitor Output Connector (MONITOR OUT1, MONITOR OUT2/CASCADE OUT)**
Connect monitors to these BNC connectors.
The MONITOR OUT2 connector can also be used as the CASCADE OUT connector.
When using two or more units of the WJ-HD316/WJ-HD309 and using the MONITOR OUT2 connector as the CASCADE OUT connector, connect with the CASCADE IN connector of another WJ-HD316/WJ-HD309.

⑥ **Cascade In Connector (CASCADE IN)**
Connect with the CASCADE OUT connector of another WJ-HD316/WJ-HD309 when using two or more units of the WJ-HD316/WJ-HD309.

⑦ **Serial Connector (SERIAL)**
Connect a PC with this D-Sub 9-pin connector when controlling this unit.

⑧ **Monitor Connector (MONITOR (VGA))**
Connect a VGA monitor with this connector. The same video signal supplied to the MONITOR OUT2 connector will be supplied to this connector.

⑨ **Alarm Connector (ALARM)**
Connect an external device such as a sensor or a door switch with this D-Sub 25-pin connector.

⑩ **Alarm/Control Connector (ALARM/CONTROL)**
Connect a control switch with this D-Sub 25-pin connector when controlling this unit using an external device, or when controlling an alarm device such as a buzzer or a lamp.

⑪ **PS·Data Ports (DATA)**
Connect PS·Data compatible devices with these ports.

⑫ **Mode Switches (MODE)**
Set the operation mode of this unit with these dip switches.

⑬ **RS485 Ports (RS485 (CAMERA))**
Connect RS485 compatible combination cameras with these ports.

⑭ **Network Port (10/100BASE-T)**
Connect this unit to a network compatible with 10BASE-T or 100BASE-Tx when controlling this unit using a PC via a network.

⑮ **Copy Port (COPY1)**
Connect a recommended DVD-RAM drive, CD-R drive or DVD-R drive with this port.

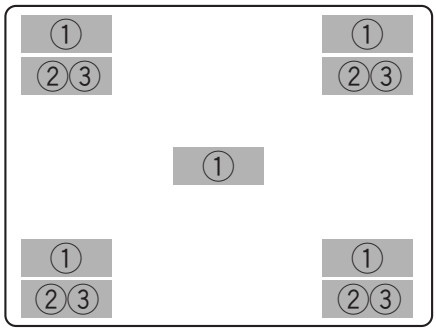
⑯ **Extra Storage Port (EXT STORAGE)**
Connect an optional extension unit (WJ-HDE300) with this port.

⑰ **Power Switch (POWER)**
Turns the power of this unit on and off.

⑱ **Signal Ground Terminal (SIGNAL GND)**

⑲ **Power Cord Inlet (AC IN)**
Connect the power cord to this inlet.

■ On the Monitor 1 (To display only live image)



Important:
- The SETUP MENU cannot be displayed on the monitor 1.
- It will take around 2 minutes to display live image on the monitor 1 after turning on the power of the unit.

1. Camera Title
Displays the edited camera title.
A position to display a camera title can be selected from the following.
Upper left, upper right, lower left, lower right, center
The default camera title position is lower right (R-LOWER).

Note: The camera title will be displayed with 16 characters (2 lines: 8 characters per line).

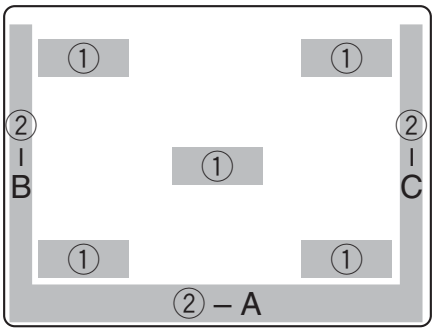
2. Time
Displays the current time (hour:minute:second) and date (month:day:year).
A position to display the time can be selected from the following.
Center, upper left, lower left, upper right, lower right
The default time display position is lower left (L-LOWER).
Note: When the camera title and the time display are layered, only the time display will be displayed.

3. Alarm Display
When an alarm has occurred, an alarm display will be displayed.
The alarm display will be displayed differently as follows depending on which alarm has occurred.
VMD-*: When motion is detected.
LOSS-*: When video loss has occurred.
COM-#: When a command alarm has occurred.
TRM-#: When a terminal alarm has occurred.

*: Camera number (1 - 16 for the WJ-HD316, 1 - 9 for the WJ-HD309)
#: Event number

Note: Refer to page 45 for further information about event types and event actions.

■ On the Monitor 2 (To display live or recorded image)



Notes:

- Same images displayed on monitor 2 will be displayed on the VGA monitor.
- The camera title will be displayed with 16 characters (2 lines: 8 characters per line).

Important:

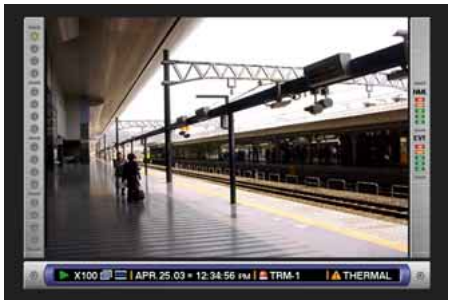
- Since the VGA output from this unit is the same as for televisions (720 H x 480 V pixels/vertical frequency of 59.94 Hz), it may be possible that both the left and right edges can not be fit onto the screen depending on the VGA monitor.
- It is impossible to use the MONITOR (VGA) connector when connecting the unit in the cascade connection.
- It may take time to display live image on the VGA monitor if the VGA monitor is turned on/off during the unit is running.

1. **Camera Title**
   Displays the edited camera title.
   A position to display a camera title can be selected from the following.
   Upper left, upper right, lower left, lower right, center
   The default camera title position is lower right (R-LOWER).

2. **Task Bar**
   Displays the current status.
   The task bar consists of the main bar (② - A), the left bar (② - B), and the right bar (② - C).
   There are 3 different ways to display the task bar as follows.

Mode 1
Displays only the main bar and the status is displayed on it.

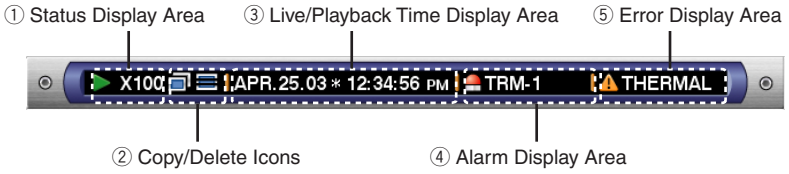
Mode 2
Displays the status on the main bar, the left bar and the right bar.



Mode 3
Displays the status only on the main bar, and does not display information on the left bar and the right bar.
Note: Mode 2 and Mode 3 are graphic images. They may not be as clear as Mode 1.

● Status on the Task Bar

• On the Main Bar



① Status Display Area

Indicated Item	Status	Indication
Live	Indicates live image display status	: Live image is displayed SEQ : Live images are displayed sequentially
Playback	Indicates that playback is currently being performed with the displayed playback speed	►: Currently playing ◄: Currently playing in reverse ❚❚: Currently pausing ►► ×100: Currently playing at fast speed ◄◄ ×100: Currently playing in reverse at fast speed
Recording	Indicates that recording is currently being performed	REC: Currently recording
Search	Indicates that searching is currently being performed	SEARCH: Currently searching

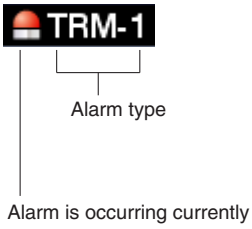
② Copy/Delete Icons

Indicated Item	Status	Indication
Copy	Indicates that data copy is currently being performed	: Currently copying
Delete	Indicates that data deletion is currently being performed	: Currently deleting data

③ Live/Playback Time Display Area

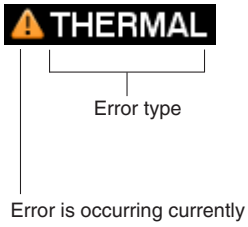
Indicated Item	Status	Indication
Time	Displays time of the displayed image When displaying live image: Current time When playing recorded image: Time when recorded *: During summer time, an asterisk (*) will be displayed on the left side of the displayed time.	APR.25.03 * 12:34:56 PM Year:Month:Day Hour:Minute:Second

④ Alarm Display Area

Indicated Item	Status	Indication
Alarm	Indicates that an alarm has occurred **VMD-*:** When motion is detected **LOSS-*:** When video loss has occurred **COM-*:** When a command alarm has occurred **TRM-*:** When a terminal alarm has occurred *: Camera number (1 - 16 for the WJ-HD316, 1 - 9 for the WJ-HD309) #: Alarm number	

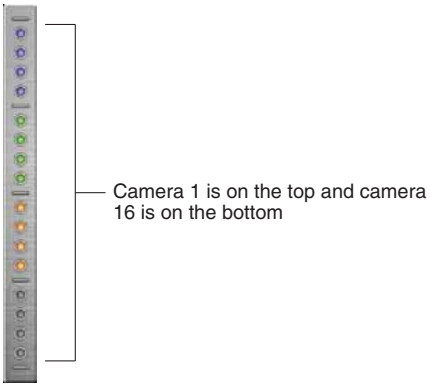
Note: Refer to page 45 for further information about event types and event actions.

⑤ Error Display Area

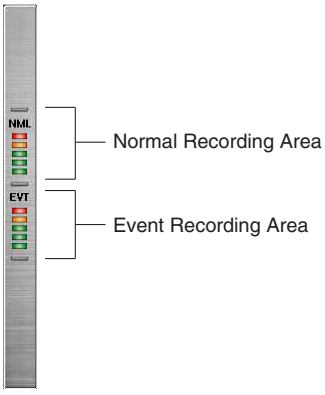
Indicated Item	Status	Indication
Error Warning	Indicates an error occurrence or warning **ALT-*:** Alteration is detected **W-ERROR:** Failed to write data on the HDD **SMART:** Warning of the HDD malfunction **H-METER:** Set time for hour-meter (active time of the HDD) warning has passed **THERMAL:** The temperature inside the unit is too high **POWER:** A power outage has been detected **#-nn%:** Warning about running out of disk space while displaying available disk space percentage **#-FULL:** No available disk space **MEDIUM-n:** An error occurred in an external recording device **REMOVE:** The hard disk is removed from the system automatically because of an access error **FAN:** The fan is faulty *: Camera number (1 - 16 for the WJ-HD316, 1 - 9 for the WJ-HD309) #: Abbreviation that indicates partition nn: Available disk size n: Number of connector that an external recording device is connected to	 **Abbreviation of partition** Status — Displayed abbreviation Normal recording area — NML Event recording area — EVT Copy area — CPY External recording device connected to the COPY1 port on the rear panel — CP1 External recording device connected to the COPY2 port on the front panel — CP2

Note: Refer to page 56 for further information about error types and what to do when an error has occurred.

• On the Left Bar

Indicated Item	Status	Indication
Camera	Indicates recording and displaying status **Gray:** Camera currently not displayed or not connected to a respective channel **Green:** Camera displayed on the monitor **Orange:** Camera currently being recorded **Blue:** Camera currently being recorded and displayed on the monitor	

• On the Right Bar

Indicated Item	Status	Indication
Used disk space	Indicates the available disk space of each partition. **Top:** 100 % of the disk space is used (no available disk space) **Second from the top:** 80 % of the disk space is used **Center:** 60 % of the disk space is used **Second from the bottom:** 40 % of the disk space is used **Bottom:** 20 % of the disk space is used **Note:** When "CONTINUE" is selected on the "Termination" page of the "Maintenance" setup menu, available disk space will not be displayed. Refer to a system administrator for further information. **NML:** Available disk space of the normal recording area used for manual recording and schedule recording **EVT:** Available disk space of the event recording area used for event recording and emergency recording	

1 Insert the power plug to an outlet (AC 120 V, 60 Hz)

Note: Make sure the power source is AC 120 V, 60 Hz.

2 Turn on the power switch on the rear panel.

The OPERATE indicator will light and the system check (checking the system and hard disk) will start.
The startup splash image below will be displayed on monitor 2 and the VGA monitor during the system check.

When the auto login is off, the login window will be displayed if any button on the front panel of this unit is pressed after the system check. (Go to step 3)
When the auto login is on, live images will be displayed after the system check.

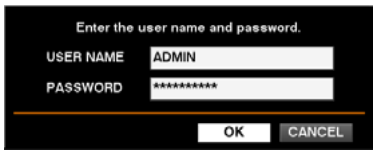
Notes:

- If the hard disk configuration had been changed after the last startup or the hard disk has problems, the HDD DISK MENU will be displayed automatically after the startup splash. (Refer to page 130 for further information.)
- It is possible to display the disk configuration menu by pressing the SET button when the image below that says the system check has been completed is displayed.

Important:

When using the optional extension unit (WJ-HDE300), turn the power of this unit after turning on the power of all extension units.

3 Enter a user name and password.



Rotate the jog dial to select a character to be entered in the cursor position.
It is also possible to enter numbers by pressing the camera selection buttons ([1] - [10/0] for the WJ-HD316, [1] - [9], [0] for the WJ-HD309).
To move the cursor, press the arrow buttons.

Use the same method to enter or edit characters attached to images. Refer to page 54 for further information.

Notes:

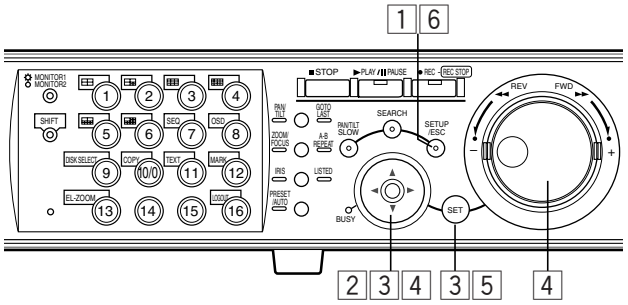
- The default user name and password are as follows:
  User name: ADMIN
  Password: 12345
- To enhance the security, change the password for an administrator before start running the unit. It is recommended to change the password for an administrator periodically.

4 Display a live image.

Press the SET button to display a live image.
If the authentication (login) window is displayed, enter user name and password.
When authenticated, a live image will be displayed.
When not authenticated, the authentication (login) window will be displayed again.

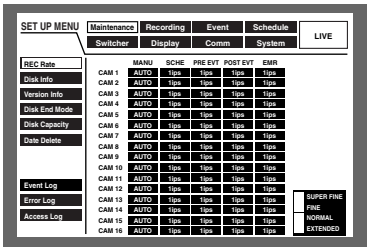
CLOCK ADJUSTMENT

It is recommended to check the clock periodically and put the clock right if it shows the wrong time.
Adjust the clock when displaying a live image.

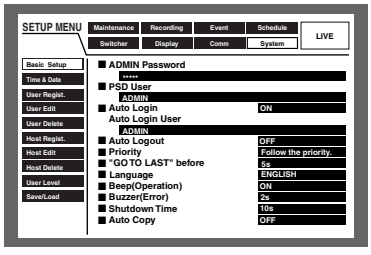


1 Press the SETUP/ESC button for 2 seconds or more.

The SETUP MENU will be displayed on monitor 2 and the VGA monitor.

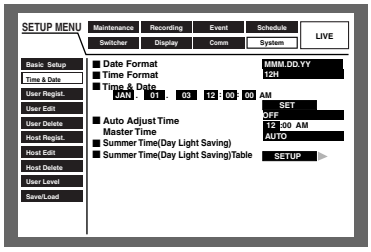


2 Move the cursor to "System" using the arrows button (▼ ▲ ◄ ►) and press the SET button.

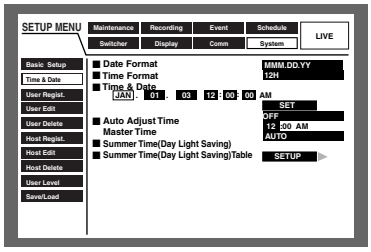


3 Move the cursor to "Time & Date" using the arrows button (▼ ▲), and press the SET button.

The "Time & Date" menu will be displayed.

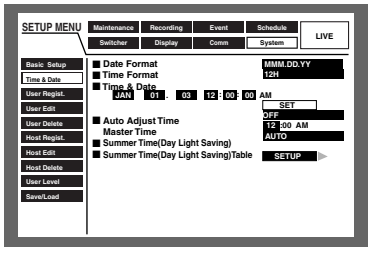


4 Move the cursor to "Time Format" using the arrows button and set the time (Month, Day, Year, Time) using the jog dial.



5 Move the cursor to "SET" and press the SET button.

The selected date format and the set time will be applied.



6 Press the SETUP/ESC button for 2 seconds or more.

The SETUP MENU will disappear and live image will be displayed.

Important:

Recording will stop for around 4 seconds just after setting the clock.

SHUTDOWN

To shutdown the unit, do the following.

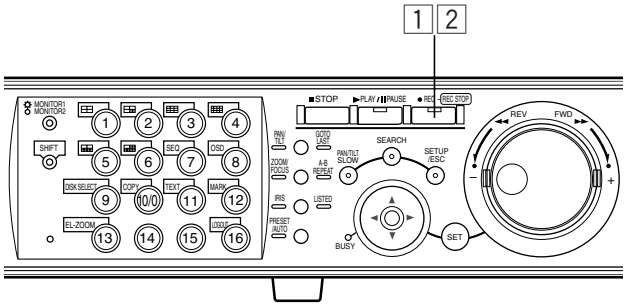
When recording is being performed, press the REC button for 2 or more seconds. Recording will stop and the indicator on the REC button will go off.
When playback is being performed, press the STOP button. Playback will stop and the indicator on the PLAY/PAUSE button will go off.
Turn off the power of the unit after confirming that the HDD1 and HDD2 indicators are off.

Important:

- Detach the plug from the outlet if not operating the unit for a length of time.
- When the unit has not been operated for a certain period, turn on the power of the unit twice a week to prevent interference with functions.

RECORDING (Manual Recording)

Do the following to record manually.
Refer to a system administrator about the required settings for manual recording.



1 Start recording.

Press the REC button to start recording.
The indicator on the button will light and recording will start.
Images from all the connected cameras will be recorded with the default setting.
It is possible to record only images displayed on monitor 2 and the VGA monitor by changing the settings.

When recording with higher priority than manual recording is performed, manual recording will not be performed until this recording finishes.
Refer to the following about the recording mode.

2 Stop recording.

Press the REC button down for around 2 seconds.
The indicator on the button will go off and recording will stop.

Notes:

- The camera selection button will light orange (currently recording) or blue (currently being recorded and displayed on the monitor) to indicate which camera is being recorded.
- When recording with other recording modes being performed, the indicator on the REC button will not go off even though the REC button is pressed to stop manual recording.

● Recording Mode and Priority

There are 4 recording modes as follows.

Recording Mode	Description	Priority*1
Emergency Recording	Start recording manually using an external switch at an emergency event occurrence	Highest
Event Recording	Recording will be performed automatically at an event occurrence	1*2
Manual Recording	Start and stop recording manually	2*2
Schedule Recording	Recording will be performed automatically with a designated start/stop time and date	3*2

*1: Priorities on the above table are the default settings. (Emergency recording is the highest priority.)
*2: Priorities for manual recording, schedule recording and event recording can be changed. Refer to a system administrator about the settings.

● Recording Time

Approximate possible recording durations will be as follows (with built-in HDD, manual recording):

Recording with audio

Unit: Hour

Recording Rate [ips]	EXA (For Extended Recording)	NQA (Standard)	FQA (High Quality)	SFA (Highest Quality)
2	2 040	1 730	1 320	1 070
3	2 040	1 730	1 320	1 070
5	680	570	440	1 070
6	1 270	950	630	470
7.5	680	570	440	350
10	510	430	330	260
15	400	340	260	210
30	200	170	130	100
60	60	50	40	30

Recording without audio

Unit: Hour

Recording Rate [ips]	EXA (For Extended Recording)	NQA (Standard)	FQA (High Quality)	SFA (Highest Quality)
2	3 810	2 860	1 900	1 430
3	3 810	2 860	1 900	1 430
5	1 270	950	630	470
6	1 270	950	630	470
7.5	950	710	470	350
10	760	570	380	280
15	760	570	380	280
30	380	280	190	140
60	120	90	60	40

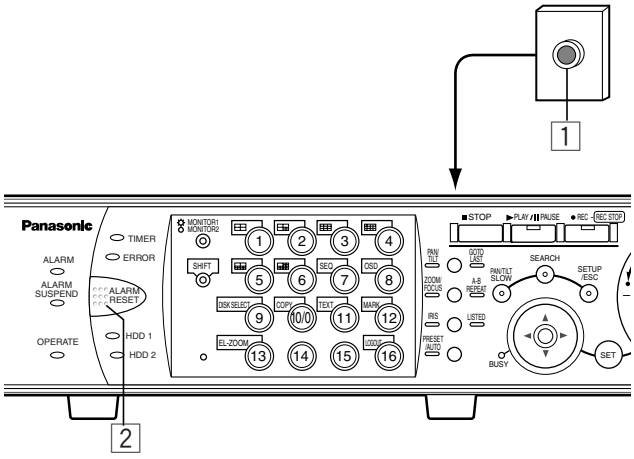
Important:

The possible recording durations on the above tables are approximate durations under the conditions below. The possible recording durations varies depending on object of shooting. Refer to a system administrator for further information.

- Recording on the built-in hard disk (160 GB x 1)
- Recording all camera channels by manual recording
- "AUTO" is selected for the recording rate
- Resolution: FIELD
- Color Mode: COLOR STD (The color mode setting is available only using a PC via a network.)

RECORDING (Emergency Recording)

Record manually using an external switch at an emergency event occurrence.
For example, install an external switch at the reception counter, and start recording with it when a suspicious individual appears.
Refer to a system administrator about the required settings for emergency recording.



1 Press the external switch.

The indicator on the REC button will light and recording will start.
With the default setting, recording will be performed for 10 seconds.

Emergency recording is the highest priority. Emergency recording will be performed even when this unit is recording in other recording modes.

2 Stop recording.

When the recording duration set in advance has passed, recording will stop automatically.
With the default setting, recording will stop automatically after recording for 10 seconds.

When "CONTINUE" is selected for "Recording Time" of "Emergency REC" on the SETUP MENU (Recording), press the ALARM RESET button to stop recording.
The indicator on the REC button will go off and recording will stop.

Important:

- The camera selection button will light orange (currently recording) or blue (currently being recorded and displayed on the monitor) to indicate which camera is being recorded.
- When starting emergency recording while another recording with a different recording mode (except event recording) is being performed, the indicator on the REC button will remain lit and the other recording will resume after the emergency recording has finished.

● Recording duration of emergency recording

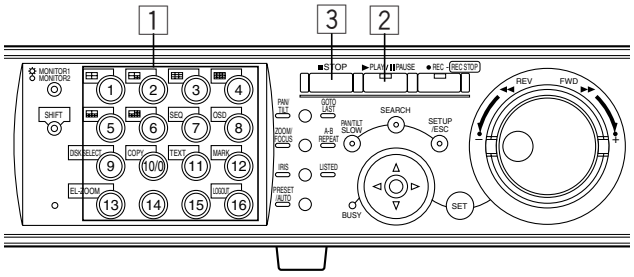
Recording duration of emergency recording can be set as follows. Refer to a system administrator for further information.

Parameter	Recording Duration
1 s - 10 s	Record for the selected time (1 - 10 seconds , can be set in 1 second step)
20 s	Record for 20 seconds
30 s	Record for 30 seconds
1 m - 10 m	Record for the selected time (1 -10 minutes can be set in 1 minute intervals)
20 m - 60 m	Record for the selected time (20 - 60 minutes, can be set in 10 minutes intervals)
MANUAL	Record only while the external switch is being pressed down
CONTINUE	Record until the ALARM RESET button is pressed

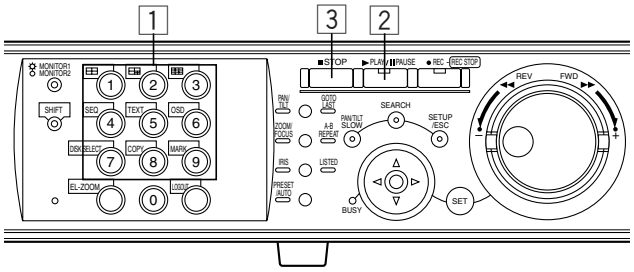
PLAYBACK

It is possible to play recorded images without stopping recording.
The playback images will be displayed on monitor 2 and the VGA monitor.

[WJ-HD316]



[WJ-HD309]



1 Select a camera respective to the recorded images to be played. (Go to step 2 if not necessary)

Press the desired camera selection button.
The pressed camera selection button will light green or blue and the respective live images will be displayed.

2 Start playback.

Press the PLAY/PAUSE button.
The indicator on the PLAY/PAUSE button will light and the recorded images of the selected camera will be played.

First playback after login: The latest recorded image will be played.
With the default setting, playback will start 5 seconds before the start time of the latest recorded image. The start time can be selected from the following:
5 s/10 s/30 s/1 m/5 m

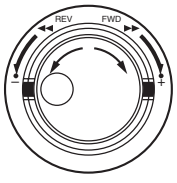
Refer to a system administrator about the settings.

Other than those above: Playback will start from the end point of the recorded image played last time.

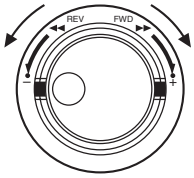
3 Stop playback.

Press the STOP button.
The indicator on the PLAY/PAUSE button will go off and playback will be stopped.
Live images will be displayed on monitor 2 and the VGA monitor.

● Available functions during playback

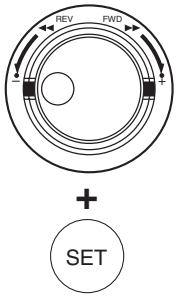
Pause		Pressing the PLAY/PAUSE button to pause playback. While pausing, the indicator on the PLAY/PAUSE button will blink. Pressing this button again will resume playback.
Single frame skip		Rotating the jog dial during pause will skip to the next or previous frame. Rotating the jog dial clockwise will skip to the next frame and rotating it counterclockwise will skip to the previous frame.

Fast forward/Fast reverse



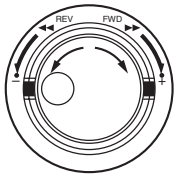
Rotating the shuttle ring will change the playback speed (1/2x, 1x, 2x, 5x, 10x, 20x) according to rotated degree. When the shuttle ring is held in the 20x position (rotated to the end) for 5 seconds, the playback speed will be 50x. When the shuttle ring is held 5 more seconds after the playback speed became 50x, the playback speed will be 100x.
Rotating the shuttle ring clockwise will play at a faster speed and rotating it counterclockwise will play images in reverse at a faster speed.
To play at normal speed, release the shuttle ring.

Hold playback speed



Press the SET button while holding the rotated shuttle ring to hold a desired playback speed. (Playback speed will be held even though the shuttle ring is released.)
To return to the normal playback speed, press the SET button.

Skip



Rotating the jog dial during playback will skip to the next or previous recorded image.
Rotating the jog dial clockwise will skip to the start time of the next recording and start playback, and rotating it counterclockwise will skip to the start time of the previous one. (Rotating the jog dial counterclockwise at the point around the start time of the recording will skip to the start time of two more previous recording).
If there is no next or previous recorded image, current playback will continue.

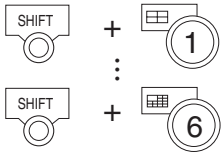
Play the latest recorded image

Press the GO TO LAST button to play the latest recorded image.

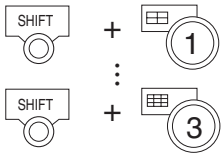
Multi-screen display

It is possible to display recorded images in multi-screen format (4/7/9/10/13/16 for the WJ-HD316, 4/7/9 for the WJ-HD309).

(For the WJ-HD316)



(For the WJ-HD309)



① Press the SHIFT button. The SHIFT indicator will light.
② Press a camera selection button (1 - 6 for the WJ-HD316, 1 - 3 for the WJ-HD309) to select a desired multi-screen.
Camera selection button 1: 4-split screen
Camera selection button 2: 7-split screen
Camera selection button 3: 9-split screen
Camera selection button 4: 16-split screen (Only for the WJ-HD316)
Camera selection button 5: 10-split screen (Only for the WJ-HD316)
Camera selection button 6: 13-split screen (Only for the WJ-HD316)
③ To display recorded images on a single screen, press the SHIFT button again.
After the SHIFT indicator goes off, press the camera selection button.

Marking

(For the WJ-HD316) SHIFT + Mark 12

(For the WJ-HD309) SHIFT + Mark 9

It is possible to play from a marked point. Do the following to mark a desired point.

1. Press the SHIFT button. The SHIFT indicator will light.
2. Press the camera selection button 12 (9 for the WJ-HD309) (MARK) at a desired point to be marked during playback.
   Up to 100 points can be marked. When more than 100 points are marked, the old marked point will be overwritten by new marked point. In this case, the oldest marked point is the first to be overwritten.
   When marked while displaying in multi-screen, the same number of split screens will be counted as marked points. (When a point is marked while displaying a 16-split screen, 16 points will be marked simultaneously.)

Text display

(For the WJ-HD316) SHIFT + TEXT 11

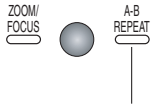
(For the WJ-HD309) SHIFT + TEXT 5

It is possible to display text information attached to recorded image while playback.

Text display is available only when playing on a single screen.

① Pause playback.
② Press the SHIFT button. The SHIFT indicator will light.
③ Press the camera selection button 11 (5 for the WJ-HD309) (TEXT).

A - B repeat playback



Blink: During the A-B repeat playback
Light: When designating a start point (A)

It is possible to play recorded images between two designated points repeatedly.

① Designate a start point (A) by pressing the A - B REPEAT button during playback.
   The A - B REPEAT indicator will light, and the time of point A will be displayed.

   To cancel the designated point, press the SETUP/ESC button.

② Designate an end point (B) by pressing the A - B REPEAT button during playback.
   When the start point and the end point are set, the A - B REPEAT indicator will start blinking.
   Playback between point A and B will start and keep playing repeatedly.
   The time of point A and B will be displayed during playback.

③ Press the A - B REPEAT button during A - B repeat playback to return to normal playback.
   Note: Playback will be paused if the playback time caught up with the recording time (present time) when recording and playback are performed simultaneously.

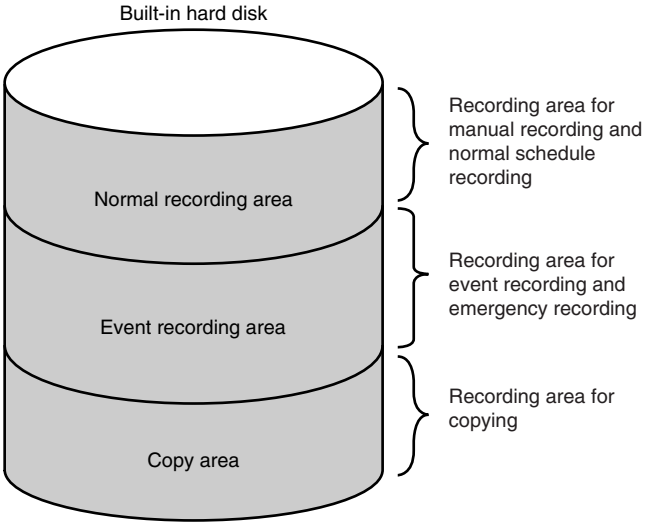
PLAYBACK IMAGE ON A DESIGNATED DISK

Images from a camera will be recorded on the built-in hard disk or external recording devices (DVD-RAM drive, DVD-R drive or CD-R drive) connected to this unit.
Available disk space or disks are as follows.

Note: External recording devices can be used as a copy area for images recorded on the hard disk. It is impossible to record images on the external recording devices directly.

HDD Normal Recording Area/Event Recording Area:
Disk space for recording on the built-in hard disk
Recorded images by manual recording (refer to page 19) or event recording will be stored in this area.

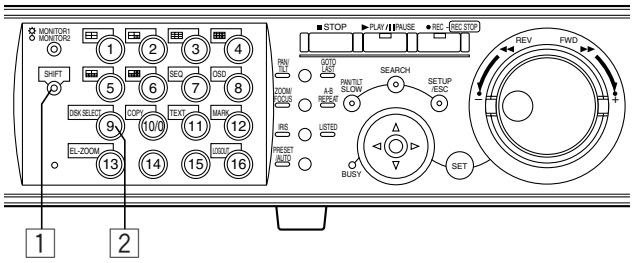
HDD Copy Area: Disk space for recording on the built-in hard disk
Recorded images will be copied in this area (refer to page 48).


Built-in hard disk
Normal recording area
Event recording area
Copy area
Recording area for manual recording and normal schedule recording
Recording area for event recording and emergency recording
Recording area for copying

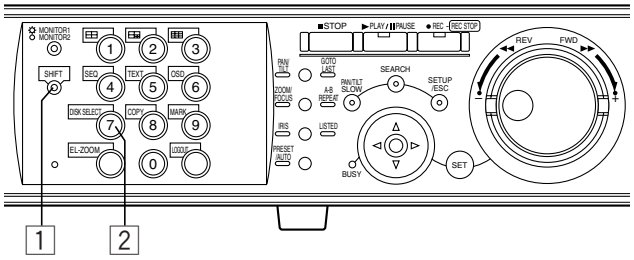
Notes:

- Playback images will be displayed only on monitor 2 and the VGA monitor.
- Playback can be performed during recording.
- Disk space size of each recording area differs depending on the settings.
  Refer to a system administrator for further information.

[WJ-HD316]



[WJ-HD309]

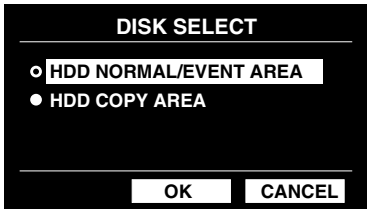


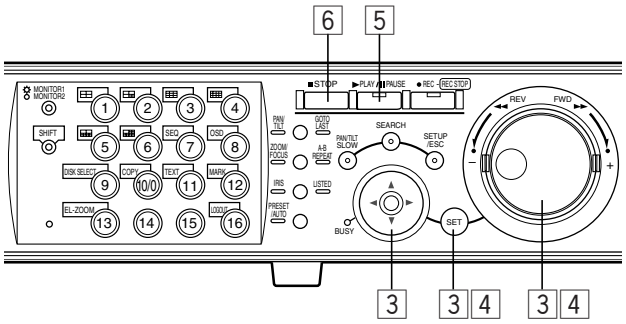
1 Press the SHIFT button.

The SHIFT indicator will light.

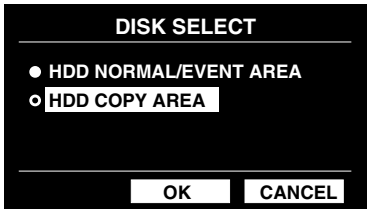
2 Press the camera selection button 9 (7 for the WJ-HD309) (DISK SELECT).

The DISK SELECT window will be displayed on monitor 2 and the VGA monitor.



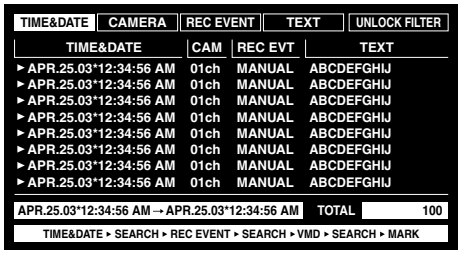


3 Move the cursor to select a disk to be played using the arrow buttons and rotate the jog dial to check the radio button next to the selected disk. Press the SET button to determine the selection.



The recording event list window will be displayed. (Refer to page 28 for further information.)
To close the DISK SELECT window, move the cursor to select "CANCEL" and press the SET button.

4 Rotate the jog dial to select a desired recorded image to be played, and press the SET button to determine the selection.



5 Press the PLAY/PAUSE button to play the selected recorded image.

The indicator on the PLAY/PAUSE button will light and playback will start.

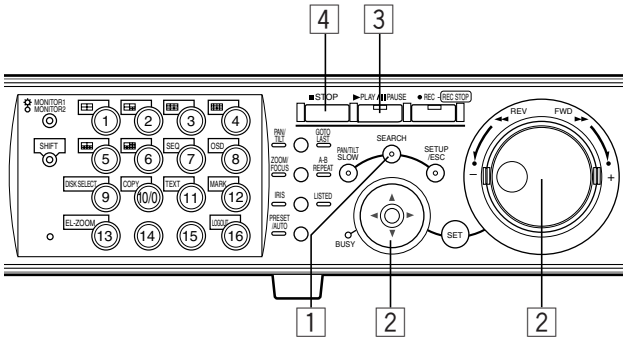
6 To stop playback, press the STOP button.

The indicator on the PLAY/PAUSE button will go off and playback will stop.
Live images will be displayed on monitor 2 and the VGA monitor.

Note: Pressing the PLAY/PAUSE button after stopping playback will start playback from the end point of the recorded image played last time.

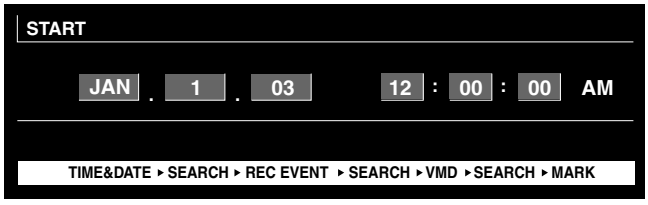
PLAYBACK FROM A DESIGNATED TIME AND DATE

It is possible to play recorded images from a designated time and date without stopping recording.
Playback images will be displayed on monitor 2 and the VGA monitor.



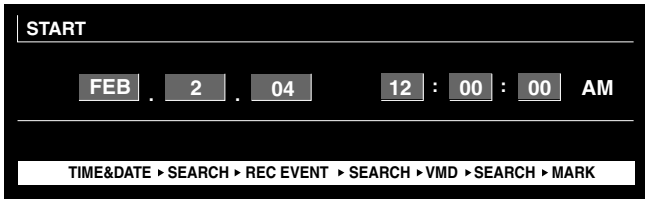
1 Press the SEARCH button repeatedly until the time and date designation window is displayed.

The time and date designation window will be displayed on monitor 2 and the VGA monitor.



2 Enter the start time using the jog dial and the arrows button.

Select time and date using the jog dial. To move the cursor, use the arrows button (◄ ►).



3 Press the PLAY/PAUSE button.

The indicator on the PLAY/PAUSE button will light and start playback from the entered time and date.

If there is no recorded image after the entered time:
When there are images recorded after the entered time, the oldest recorded image after the entered time will be played.
When there are no images recorded after the entered time, the newest recorded image before the entered time will be played.

4 Press the STOP button.

The indicator on the PLAY/PAUSE button will go off and stop playback.
Live images will be displayed on monitor 2 and the VGA monitor.

SEARCH AND PLAY

There are 3 ways to search for a recorded image and play it.

- Search for a recording event and play it (Recording event search)
- Search for a motion detected time and date from recorded images and play it (VMD search)
- Search for a marked point and play it (Marking search)

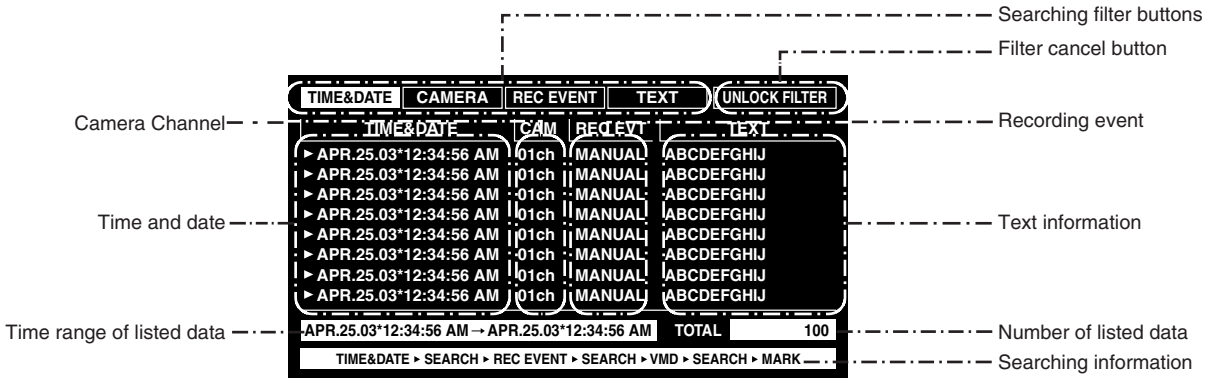
Note: Playback images will be displayed on a single screen on monitor 2 and the VGA monitor. To play in a multi-screen, switch to a multi-screen after starting playback.

■ Searching For a Recording Event and Playback (Recording Event Search)

Display a list or a thumbnail of recording events, and select the desired recording event from them to play it.
It is possible to search using the following filters:

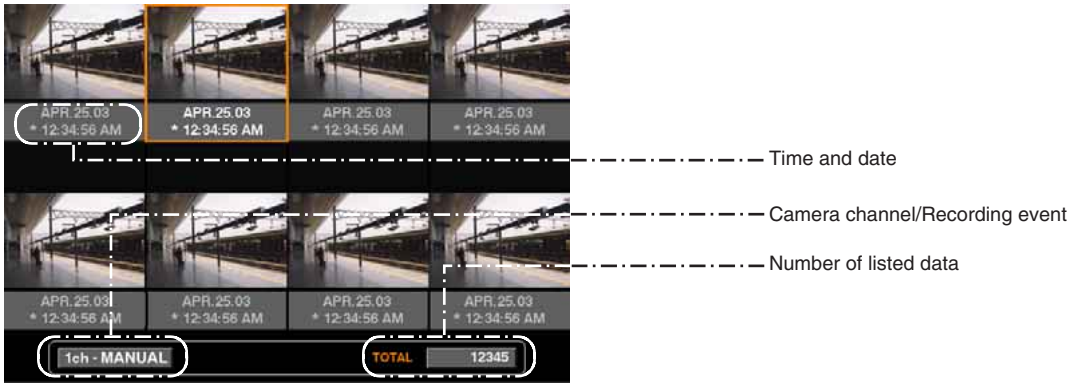
Searching Filters	
TIME & DATE	Search for only images recorded in the entered time range.
CAMERA	Search for only recorded images from the selected camera channel.
REC EVENT	Search for only images recorded in the selected recording mode. It is possible to search for images recorded in the following recording modes: EMERGENCY: Emergency recording (Refer to page 21.) VMD: Event recording performed when motion had been detected (Refer to page 32.) TERMINAL: Event recording performed when a terminal alarm had been detected. COMMAND: Event recording performed when a command alarm had been detected. VIDEO LOSS: Event recording performed when video loss had occurred. MANUAL: Manual recording (Refer to page 19.) SCHEDULE: Schedule recording (Refer to page 104.)
TEXT	Search for only images recorded with text information

● Recording Event List Window



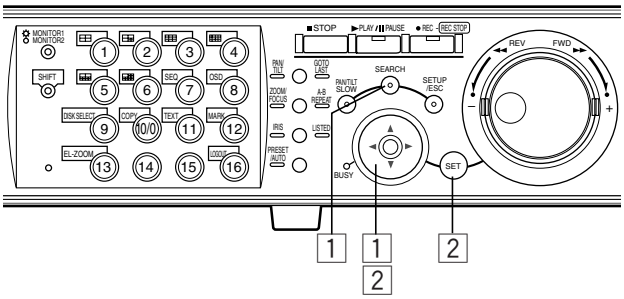
Searching filter buttons: Selects the searching filter
Filter cancel button: Cancels the selected searching filter and lists all recording events
Time and date: <When searched by recording event>
Time when recording started will be displayed.
<When searched by VMD>
Time when motion had been detected will be displayed.
<When searched by marked point>
Time when the point was marked will be displayed.
Camera channel: Camera channel of the recorded image will be displayed. The recorded image of the displayed camera channel will be played on a single screen.
Recording event: Recording mode will be displayed.
Text information: First several characters of text information will be displayed if the image has text information.
Time range of the listed data: Time range of the listed data will be displayed.
Number of the listed data: Number of the listed data will be displayed.
Searching information: Searching filter will be displayed. (A filter of the currently displayed list will be displayed in orange.)

● Recording Event Thumbnail Window

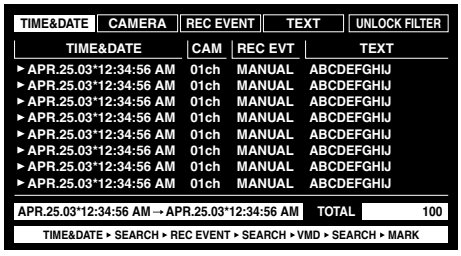


Time and date: <When searched by recording event>
Time when recording started will be displayed.
<When searched by VMD>
Time when motion had been detected will be displayed.
<When searched by marked point>
Time when the point was marked will be displayed.
Camera channel/Recording event: Camera channel of the recorded image will be displayed. The recorded image of the displayed camera channel will be played on a single screen. Recording mode also will be displayed.
Number of the listed data: Number of the listed data will be displayed.

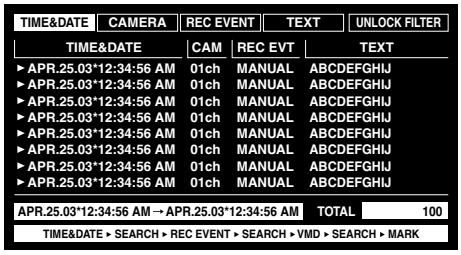
Note: Some images displayed in the thumbnail window may not match with respective displayed recorded time.



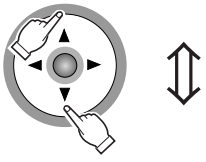
1 Press the SEARCH button repeatedly until the recording event list window is displayed.



The recording event list window will be displayed on monitor 2 and the VGA monitor.
Use the arrows button (▼ ▲) to switch displaying the list window and the thumbnail window alternately.
To search using a searching filter, go to step 4.

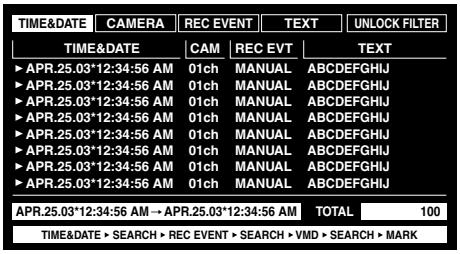


<List window>

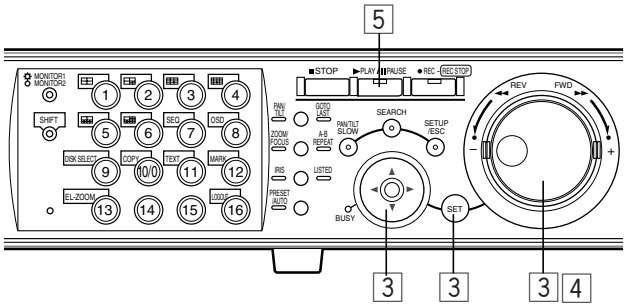


<Thumbnail window>

2 Use the arrows button (◄ ►) to select a searching filter (TIME & DATE, CAMERA, EVENT, TEXT), and press the SET button.

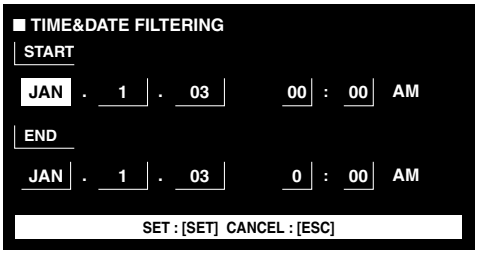


When a searching filter is selected, the respective searching filter window will be displayed.
Select "UNLOCK FILTER" and press the SET button to cancel the selected filter.
Refer to page 28 about the searching filters.



3 Filter recording events.

Filter recording events by time and date



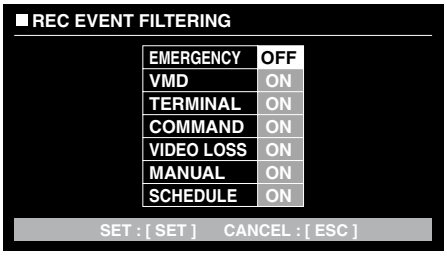
Move the cursor using the arrows button and rotate the jog dial to enter time and date.
Press the SET button to determine the entered time and date.
The recording event in the entered time range will be listed and displayed.

Filter recording events by camera channel

Select camera channel numbers (1 - 16 for the WJ-HD316, 1 - 9 for the WJ-HD309) using the arrows button to apply filtering.
The selected camera channels will turn to white.
Press the SET button to determine the selection of camera channel numbers.
The recording events of the selected camera channels will be listed.

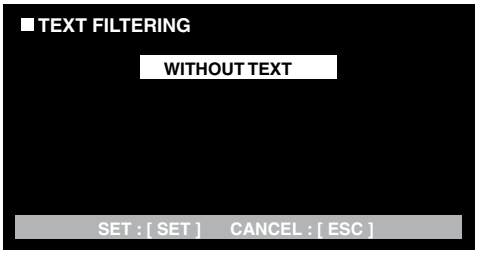
Note: When operating the system controller, select a camera channel using the numeric keypad. In this case, it is impossible to select 10 CH to 16 CH.

Filter recording events by recording event



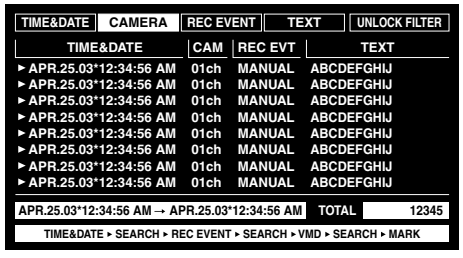
Move the cursor to select the recording event (refer to page 28) using the arrows button (▼ ▲) and rotate the jog dial to ON.
Press the SET button to determine the selection.
The recording events of the selected filter will be listed.

Filter recording events by text information



Rotate the jog dial to select OFF, WITH TEXT or WITHOUT TEXT.
Press the SET button to determine the selection.
The recording events filtered by the selected filter will be listed.

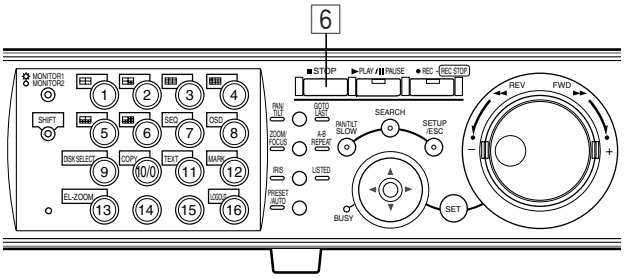
4 Rotate the jog dial to select a recording event to be played.


TIME&DATE CAMERA REC EVENT TEXT UNLOCK FILTER
TIME&DATE CAM REC EVT TEXT
► APR.25.03*12:34:56 AM 01ch MANUAL ABCDEFGHIJ
► APR.25.03*12:34:56 AM 01ch MANUAL ABCDEFGHIJ
► APR.25.03*12:34:56 AM 01ch MANUAL ABCDEFGHIJ
► APR.25.03*12:34:56 AM 01ch MANUAL ABCDEFGHIJ
► APR.25.03*12:34:56 AM 01ch MANUAL ABCDEFGHIJ
► APR.25.03*12:34:56 AM 01ch MANUAL ABCDEFGHIJ
► APR.25.03*12:34:56 AM 01ch MANUAL ABCDEFGHIJ
► APR.25.03*12:34:56 AM 01ch MANUAL ABCDEFGHIJ
APR.25.03*12:34:56 AM → APR.25.03*12:34:56 AM TOTAL 12345
TIME&DATE ▸ SEARCH ▸ REC EVENT ▸ SEARCH ▸ VMD ▸ SEARCH ▸ MARK

5 Press the PLAY/PAUSE button.

The LISTED indicator and the indicator on the PLAY/PAUSE button will light and playback of the selected recording event will start.

Note: When the LISTED indicator is lit, only listed recording events are available to be played. Press the LISTED button during playback to make all recording events available to be played.



6 To stop playback, press the STOP button.

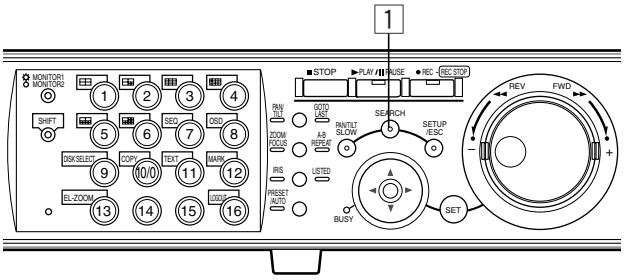
The indicator on the PLAY/PAUSE button will go off and playback will be stopped.
Live images will be displayed on monitor 2 and the VGA monitor.

Important:

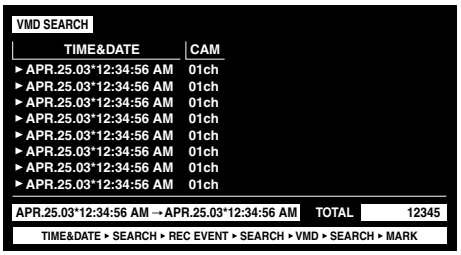
In the recording event list, start time of recording will be displayed.
When events occurred successively, contents of the event log and the recording event list will not always match since the unit continues to record the first occurred event.

■ Searching for a motion detected time and date from recorded images and play it (VMD search)

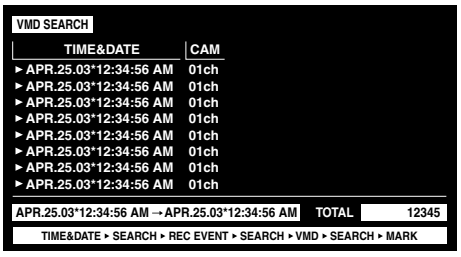
Search for a motion detected time and date from all images recorded in all the recording modes, and display a list or a thumbnail of the results.
Select a time and date displayed on the result list or thumbnail to play it.
It is possible to filter by camera channel, time and date, detection area or searching mode, to list time and date of events that were recorded when motion was detected.



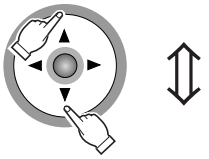
1 Press the SEARCH button repeatedly until the VMD search list is displayed.



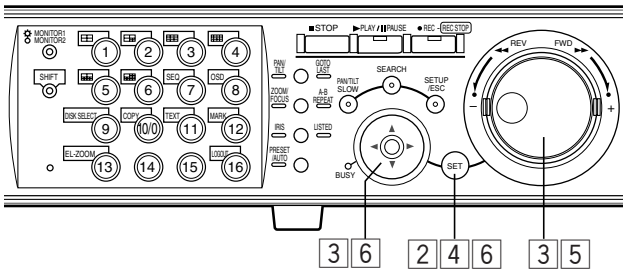
The result list of the VMD search will be displayed on monitor 2 and the VGA monitor.
(The list in the displayed window is of the results of the previous search.)
Use the arrows button (▼ ▲) to switch between displaying the list window and the thumbnail window alternately.



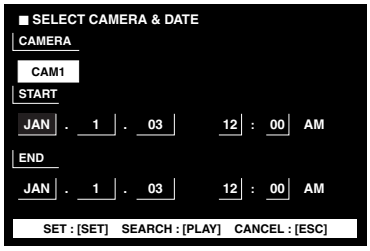
<List window>



<Thumbnail window>

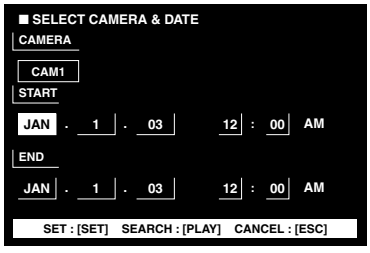


2 Press the SET button.



The VMD search window will be displayed.
Enter a camera channel number and time range on the VMD search window for the VMD search.
To search using the same conditions as the previous search, press the PLAY/PAUSE button.
Go to step 12 when the VMD search is performed and a list of the results is displayed after the PLAY/PAUSE button is pressed.

3 Move the cursor using the arrows button and rotate the jog dial to enter a camera channel number and time range for the VMD search.



4 Press the SET button.

The motion detection area setup window will be displayed.
To search using the same conditions as the previous search, press the PLAY/PAUSE button.
Go to step 12 when the VMD search is performed and a list of the results is displayed after the PLAY/PAUSE button is pressed.

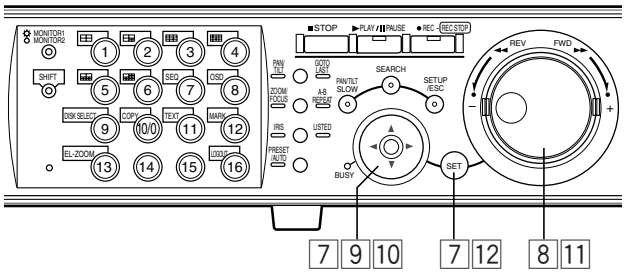
Note: If no image had been recorded in the time range set in step 3, the motion detection area setup window will not be displayed when the SET button is pressed.

5 Rotate the jog dial to select "SETUP AREA" on the status bar.

Note: It is possible to set all displayed areas as motion detection areas by pressing the SET button after selecting "ALL AREAS".

6 Move the cross cursor using the arrows button to a point to be determined as the start point of the motion detection area.

Press the SET button to determine the selected point as the start point of the motion detection area.



7 Move the cross cursor using the arrows button to a point to be determined as the end point of the motion detection area.

Press the SET button to determine the selected point as the end point of the motion detection area.
It is possible to set up to 4 motion detection areas by repeating step 6 and 7.

8 Rotate the jog dial to select "SENSITIVITY" on the status bar.

Note: Depending on the position of the set detection areas, the sensitivity indications of the detection areas may be displayed overlapping each other.

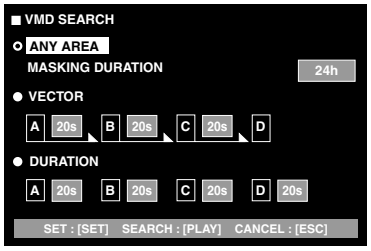
9 Move the cross cursor to the motion detection area to apply the sensitivity using the arrow button (◄ ►).

10 Select the sensitivity using the arrows button (▲ ▼) from the following.

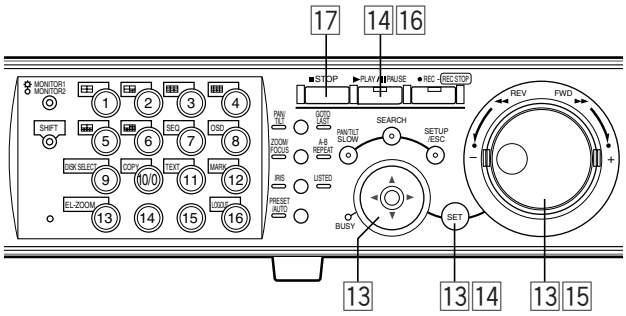
OFF: Motion will not be detected
LOW: Low sensitivity
MID: Standard sensitivity
HIGH: High sensitivity

11 Rotate the jog dial to select "EXIT" on the status bar to exit from the motion detection area setup window.

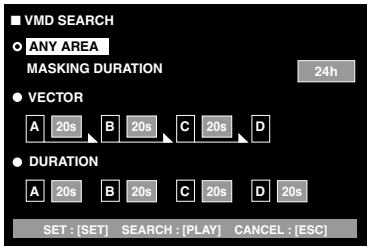
12 Press the SET button to display the VMD search window.



Refer to page 36 for further information about each of the detection modes.



13 Move the cursor to select a detection mode using the arrow buttons and rotate the jog dial to check the radio button next to the selected detection mode. Press the SET button to determine the selection.



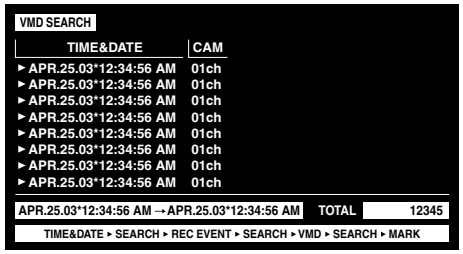
Refer to page 36 for further information about each of the detection modes.

<ANY AREA mode>
Move the cursor to the parameter box using the arrows button (►) to select a masking duration from the following.
1S/1M/1H/24H

<VECTOR mode>
Move the cursor to an area for the settings of VECTOR using the arrows button (►) and rotate the jog dial to select an area. Move the cursor to the parameter box of the selected area using the arrows button (►) to select an interval time for an object moving between each area from the following.
--/5 s/10 s/20 s/30 s/40 s/50 s/1 m

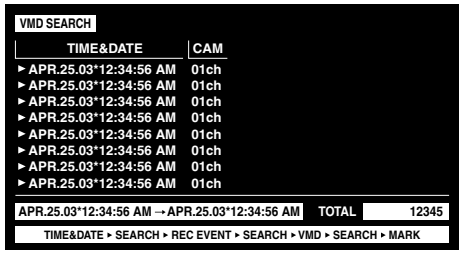
<DURATION>
Move the cursor to the parameter box of each area using the arrows button (►) and rotate the jog dial to select a moving duration for an object in each area from the following.
--/5 s/10 s/20 s/30 s/40 s/50 s/1 m

14 Press the SET button or the PLAY/PAUSE button to start searching and display the results of the VMD search.


VMD SEARCH
TIME&DATE CAM
►APR.25.03*12:34:56 AM 01ch
►APR.25.03*12:34:56 AM 01ch
►APR.25.03*12:34:56 AM 01ch
►APR.25.03*12:34:56 AM 01ch
►APR.25.03*12:34:56 AM 01ch
►APR.25.03*12:34:56 AM 01ch
►APR.25.03*12:34:56 AM 01ch
►APR.25.03*12:34:56 AM 01ch
APR.25.03*12:34:56 AM → APR.25.03*12:34:56 AM TOTAL 12345
TIME&DATE ▸ SEARCH ▸ REC EVENT ▸ SEARCH ▸ VMD ▸ SEARCH ▸ MARK

Up to 200 results will be displayed. (When 200 results are listed, searching will stop.)

15 Rotate the jog dial to select a result to be displayed.


VMD SEARCH
TIME&DATE CAM
►APR.25.03*12:34:56 AM 01ch
►APR.25.03*12:34:56 AM 01ch
►APR.25.03*12:34:56 AM 01ch
►APR.25.03*12:34:56 AM 01ch
►APR.25.03*12:34:56 AM 01ch
►APR.25.03*12:34:56 AM 01ch
►APR.25.03*12:34:56 AM 01ch
►APR.25.03*12:34:56 AM 01ch
APR.25.03*12:34:56 AM → APR.25.03*12:34:56 AM TOTAL 12345
TIME&DATE ▸ SEARCH ▸ REC EVENT ▸ SEARCH ▸ VMD ▸ SEARCH ▸ MARK

16 Press the PLAY/PAUSE button to start playback.

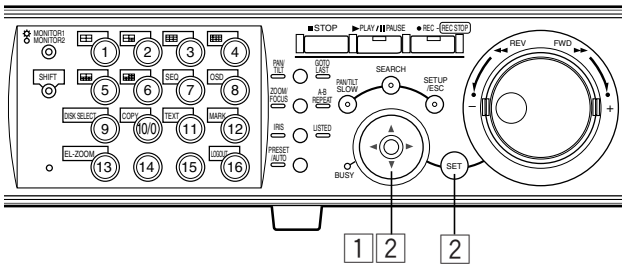
The LISTED indicator and the indicator on the PLAY/PAUSE button will light and playback of the selected recording will start.

Note: It is possible to skip the playback point to the listed time (motion detected time) by rotating the jog dial when the LISTED indicator is lit.
To return to normal playback, press the LISTED button.

17 Press the STOP button to stop playback.

The indicator on the PLAY/PAUSE button will go off and playback will be stopped.
Live images will be displayed on monitor 2 and the VGA monitor.

■ To delete the motion detection area



1 Rotate the jog dial to select "DELETE AREA" on the status bar.

Note: To delete all the motion detection areas, select "DELETE ALL AREA" and press the SET button.

2 Move the cursor to the motion detection area to be deleted using the arrows button and press the SET button.

The selected area will be deleted.

● Detection Mode

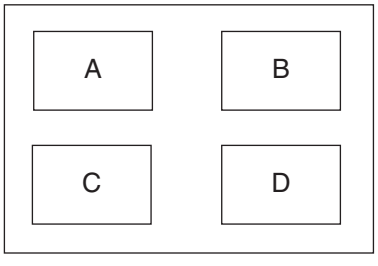
Set how to detect motion in the set motion detection area. There are 3 detection modes as follows:

Important:

It is impossible to set two or more detection modes simultaneously.

<ANY AREA mode>

It will be subject to be listed if "motion" is detected in any of the set motion detection areas.

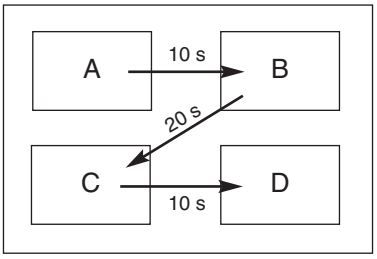


Any motion will be detected anywhere in the A, B, C, D areas.

Note: In the ANY AREA mode, it is possible to set the masking duration. When the masking duration is set, motion will be ignored for a certain period (set duration as the masking duration) in the same area. It is convenient to set the masking duration to make the subject period shorter in case it is necessary to search an extended time range or searching through many results.

<VECTOR mode>

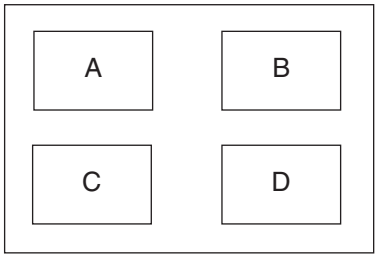
It will be subject to be listed if an object moves within the set time to the other detection areas in the set order.
The following is an example.



Motion is detected in area B within 10 seconds after being detected in area A.
Motion is detected in area C within 20 seconds after being detected in area B.
Motion is detected in area D within 10 seconds after being detected in area C.
When all of the above have occurred, an event action will be performed.

<DURATION mode>

It will be subject to be listed if an object keeps moving for the set period in the detection area. For example, in case of the following settings; 10 sec. for areas A and B, 20 sec. for area C and 30 sec. for area D:
An event action will be performed when an object keeps moving more than the set period in the specified detection area.

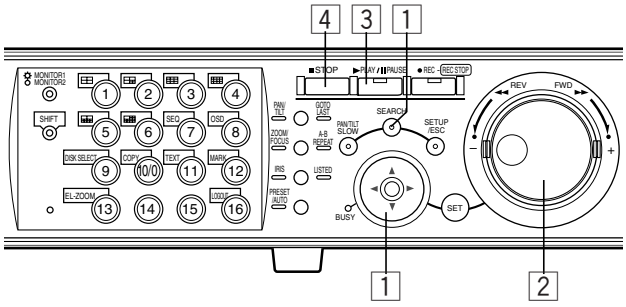


Important:

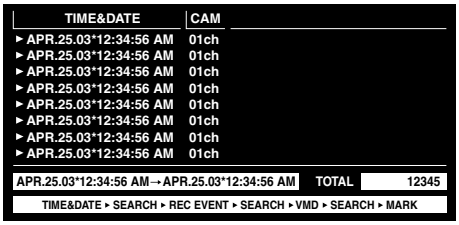
- When images to be searched are recorded with low recording rate, the DURATION mode may not work correctly.
- It may take time to search according to the contents of the recorded images.

■ Searching for a marked point and play from that point (Marking search)

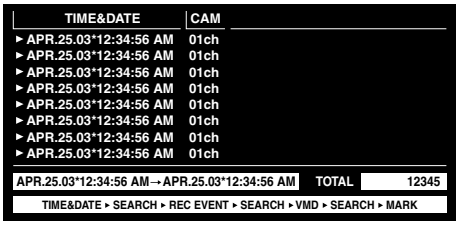
Display the recording time of recorded images with a marked point in a list or a thumbnail and select the desired recording time to play. Refer to page 24 for further information about marking.

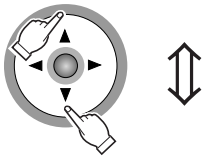


1 Press the SEARCH button repeatedly until the marking list window is displayed.



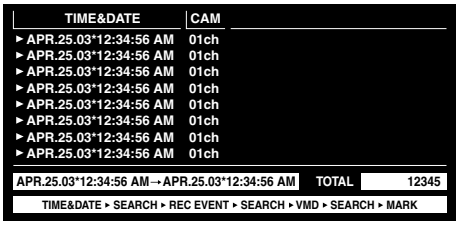
The result list of the marking search will be displayed on monitor 2 and the VGA monitor.
Use the arrows button (▼ ▲) to switch between displaying the list window and the thumbnail window alternately.





To delete all displayed marking list, press the camera selection buttons [1] and [2] simultaneously for 2 seconds or more when displaying the marking list window.

2 Rotate the jog dial to select a desired marked time.



3 Press the PLAY/PAUSE button.

The LISTED indicator and the indicator on the PLAY/PAUSE button will light, and playback a recorded image from the selected marked time will start.

Notes:

- It is possible to skip the playback point to the listed time (marked time) by rotating the jog dial when the LISTED indicator is lit.
  To return to normal playback, press the LISTED button.
- It is possible some recorded images with marked points may have been deleted by overwrite recording or the delete function.

4 Press the STOP button.

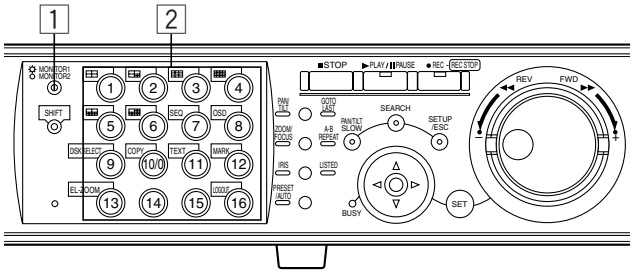
The indicator on the PLAY/PAUSE button will go off and playback will be stopped.
Live images will be displayed on monitor 2 and the VGA monitor.

MONITOR LIVE IMAGES

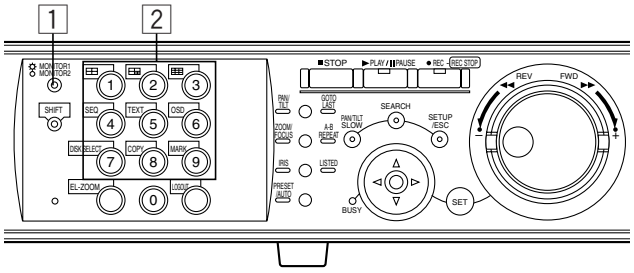
It is possible to display live images on a single screen or a multi-screen.
On a single sequential display (It is also possible that displayed images from cameras will be switched automatically)

■ Displaying Live Images on a Single Screen

[WJ-HD316]



[WJ-HD309]



1 Press the MONITOR1/MONITOR2 button to select the monitor.

When monitor 1 is selected, the indicator will light.
When monitor 2 or the VGA monitor is selected, the indicator will not light.

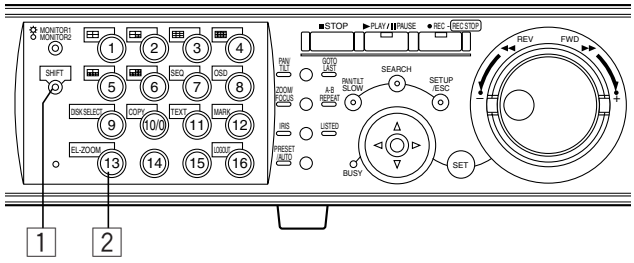
2 Press a camera selection button (1 - 16 for the WJ-HD316, 1 - 9 for the WJ-HD309) to select a camera.

Live images from the selected camera will be displayed and the respective camera selection button will light green or blue.
When monitor 2 is selected, live images will be displayed on the VGA monitor.

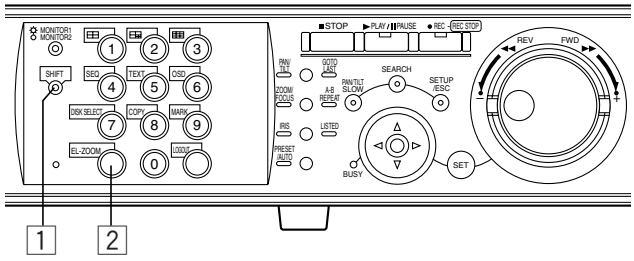
■ Electronic Zoom

When displaying a single screen, zooming in on the displayed image is possible.
Electronic zoom is available only on the selected monitor.
When the MONITOR1/MONITOR2 indicator is lit (the monitor 1 is selected), electronic zoom works only on monitor 1.

[WJ-HD316]



[WJ-HD309]



1 Press the SHIFT button when monitoring live images on a single screen.

The SHIFT indicator will light.

2 Press the EL-ZOOM button to enlarge the displayed image.

The displayed image will be displayed with x2 zoomed size.
Zooming level will change each time the EL-ZOOM button is pressed.
x2 → x4 → OFF

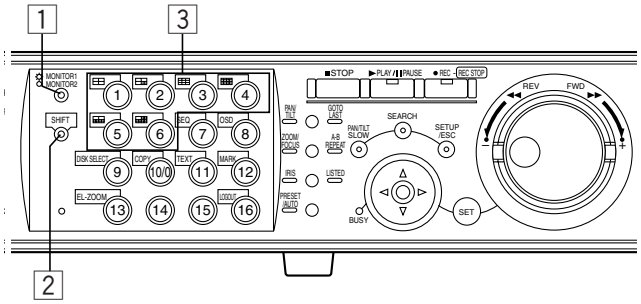
Notes:

- When an image is zoomed in on (x2 or x4), it is possible to move the zoomed image using the arrows button.
- When any indicator of PAN/TILT, ZOOM/FOCUS, IRIS, PRESET/AUTO is lit, it is impossible to use the EL-ZOOM function.

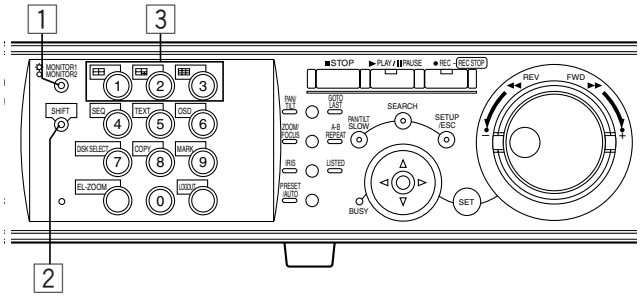
■ Displaying on a Multi-screen

It is possible to display images on a multi-screen (4, 7, 9, 10, 13, 16 for the WJ-HD316, 4, 7, 9 for the WJ-HD309).

[WJ-HD316]



[WJ-HD309]



1 Press the MONITOR1/MONITOR2 button to select the monitor.

When monitor 1 is selected, the indicator will light.
When monitor 2 is selected, the indicator will not light.

2 Press the SHIFT button.

The SHIFT indicator will light.

3 Press a camera selection button 1 - 6 (1 - 3 for the WJ-HD309) to select a desired multi-screen.

Camera selection button 1: 4-split screen
Camera selection button 2: 7-split screen
Camera selection button 3: 9-split screen
Camera selection button 4: 16-split screen (Only for the WJ-HD316)
Camera selection button 5: 10-split screen (Only for the WJ-HD316)
Camera selection button 6: 13-split screen (Only for the WJ-HD316)

The camera selection buttons respective to live images displayed on a multi-screen will light green or blue.

When monitor 2 is selected in step 1, live images will also be displayed on the selected multi-screen on the VGA monitor.

To display on a single screen

Press the SHIFT button. The SHIFT indicator will go off.
Press any of the camera selection buttons.
Live images will be displayed on a single screen.

When displaying on a 4-split screen

Each time the camera selection button 4 is pressed, displayed camera channels will be changed as follows:
WJ-HD316: 1-4 CH – 5-8 CH – 9-12 CH – 13-16 CH
WJ-HD309: 1-4 CH – 5-8 CH – 9 CH

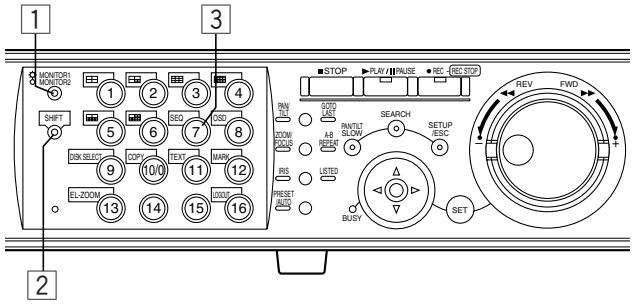
When displaying on a 9-split screen

Each time the camera selection button 9 is pressed, displayed camera channels will be changed as follows:
Only for the WJ-HD316: 1-9 CH – 10-16 CH

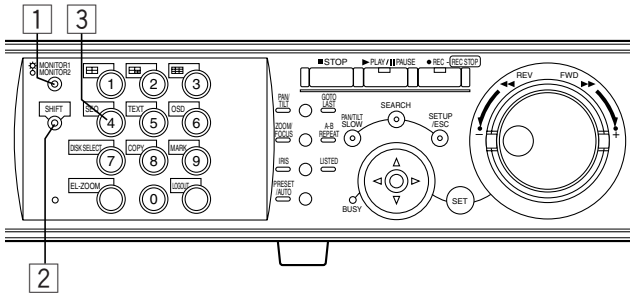
■ Sequential Display

Displayed images from cameras will be switched automatically.
Camera images will be displayed sequentially according to the settings performed in advance.

[WJ-HD316]



[WJ-HD309]



1 Press the MONITOR1/MONITOR2 button to select the monitor.

When monitor 1 is selected, the indicator will light.
When monitor 2 is selected, the indicator will not light.

2 Press the SHIFT button.

The SHIFT indicator will light.

3 Press the SEQ button.

The camera selection button respective to the displayed image will light green.
To stop sequential display, press the SEQ button.
When trying to display on a single screen or multi-screen during the sequential display, the sequential display will be stopped.
When monitor 2 is selected in step 1, the sequential display will also start on the VGA monitor.

CONTROL CAMERAS

When displaying live images, the following camera controls are possible.

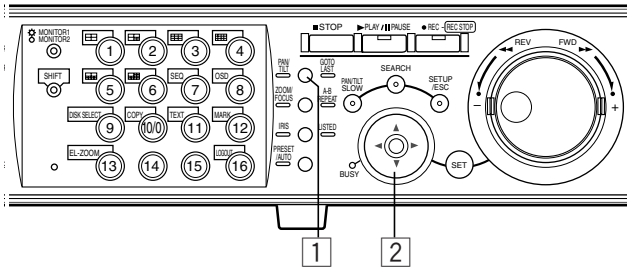
- Panning/tilting: Moves a camera horizontally/vertically.
- Zooming: Zooms in/out on images.
- Focus: Adjusts the focus.
- Iris: Adjusts the iris of the lens.
- Preset action: Moves a camera to the preset position registered in advance.
- Auto function: Moves a camera with an auto function set in advance.

Notes:

- Controlling cameras is possible only when displaying images on a single screen.
- Depending on models of the connected cameras, it may be impossible to control the camera or some functions may not be available.
- Refer to page 126 for descriptions of how to display and perform the settings with the settings menu of the camera from this unit.

■ Panning/Tilting

Moves a camera horizontally/vertically.



1 Press the PAN/TILT button.

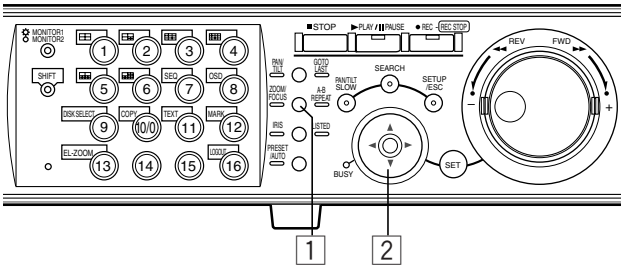
The PAN/TILT indicator will light.

2 Use the arrows button to adjust the vertical or horizontal position.

Camera will move slowly by pressing the arrows button while holding the SLOW button down.

■ Zoom

Zooms in/out on images. Depending on models of the connected cameras, the image size for the respective zooming level may be different. For further information, refer to the operating instruction for the camera.



1 Press the ZOOM/FOCUS button.

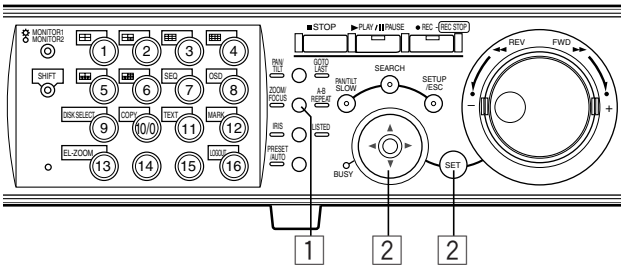
The ZOOM/FOCUS indicator will light.

2 Use the arrows button (▼▲) to zoom in on or out of the displayed image.

Press the arrows button downward (▼) to zoom out and upward (▲) to zoom in.

■ Focus

Adjusts the focus. The auto focus function is available.



1 Press the FOCUS button.

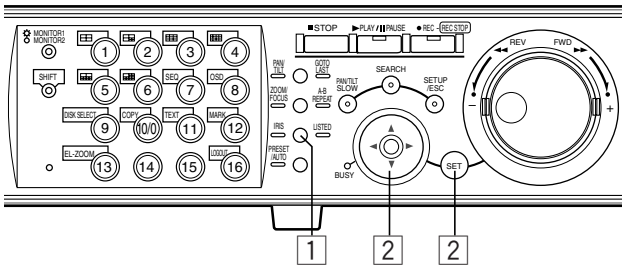
The ZOOM/FOCUS indicator will light.

2 Use the arrows button (◄ ►) to adjust the focus.

Auto focus is available by pressing the SET button.

■ Iris

Adjusts the iris of the lens.



1 Press the IRIS button.

The IRIS indicator will light.

2 Use the arrows button (◄ ►) to adjust the iris.

To reset the set iris, press the SET button.

■ Preset Action

Moves a camera to the preset position registered in advance.

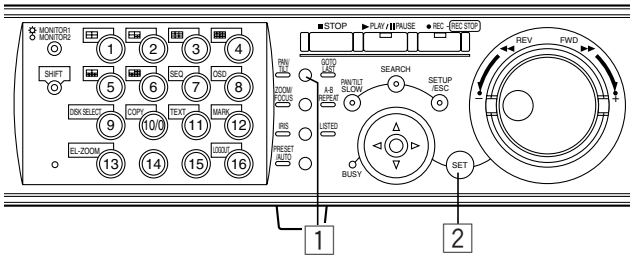
Important:

- When using a camera of the WV-CS650 (WV-CSR650) series or the WV-CS600 (WV-CSR600) series, register preset positions using the settings menu of the camera.
- When the monitor 1 is selected, it is impossible to register preset positions and move a camera to a preset position by performing the following steps.
  In this case, perform the settings using the setup menu of camera.

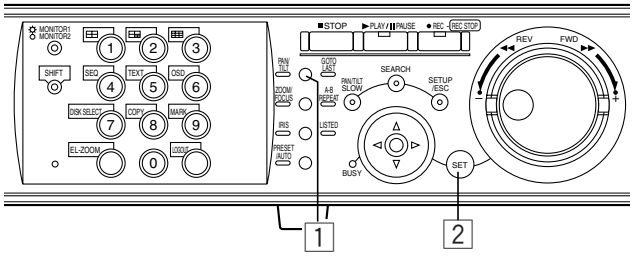
● Register Preset Positions of Cameras

Up to 64 preset positions can be registered.

[WJ-HD316]

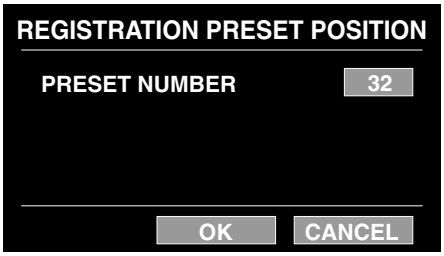


[WJ-HD309]

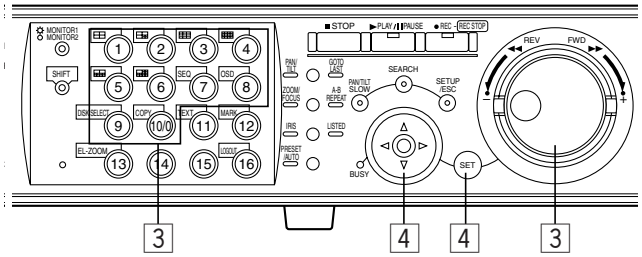


1 Press the PAN/TILT button and move the camera to a desired position to be registered as a preset position.

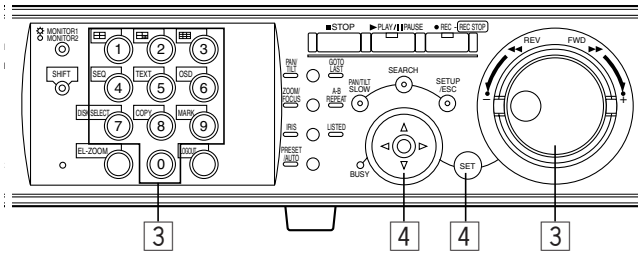
2 Press the SET button. The REGISTRATION PRESET POSITION window will be displayed.



[WJ-HD316]



[WJ-HD309]



3 Press a camera selection button ([1] - [10/0] for the WJ-HD316, [1] - [9], [0] for the WJ-HD309) to register a preset position number.

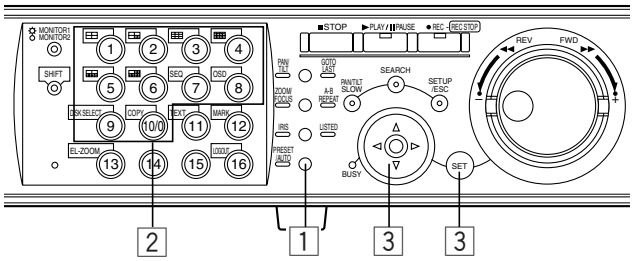
The pressed button number will be registered as a preset position number.
The jog dial also can be used to select a preset position number by rotating it.
Up to 64 can be registered as a preset position number.

4 Select "OK" using the arrows button and press the SET button.

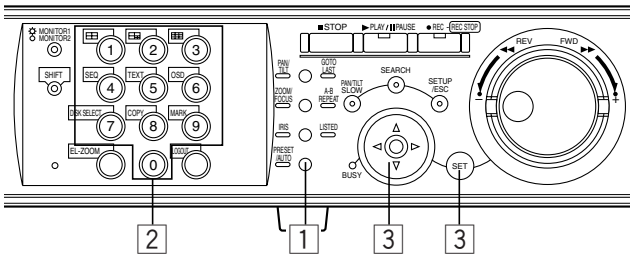
The adjusted camera position (currently displayed on the monitor) will be registered as a preset position with the selected preset position number.
To cancel the selected preset position, select "CANCEL" using the arrows button and press the SET button. The setting will be canceled and the REGISTRATION PRESET POSITION window will be closed.

■ Move a camera to the preset position

[WJ-HD316]



[WJ-HD309]



1 Press the PRESET/AUTO button.

The PRESET/AUTO indicator will light and the PRESET/AUTO PAN window will be displayed.

2 Press a camera selection button ([1] - [10/0] for the WJ-HD316, [1] - [9], [0] for the WJ-HD309) to select a desired preset position.

Pressing the camera selection button [10/0] ([0] for the WJ-HD309) moves a camera to the home position.
The jog dial can also be used to select a preset position number by rotating it.

3 Select "OK" using the arrows button and press the SET button.

The PRESET/AUTO PAN window will be closed and the camera will move to the selected preset position.
When selecting "CANCEL" using the arrows button and press the SET button, the PRESET/AUTO PAN window will be closed.

Note: To move the camera to another registered preset position, press the SET button after selecting a desired preset position number in step 2. The PRESET/AUTO PAN window will not close and it is possible to select another preset number.

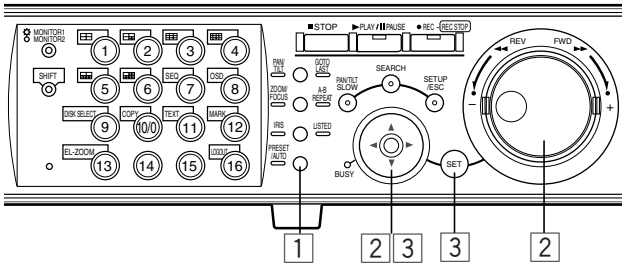
■ Auto Function (Auto Pan, etc)

Moves a camera with an auto function set in advance.

Important:

When the monitor 1 is selected, it is impossible to move a camera with an auto function by performing the following steps.

In this case, perform the settings using the setup menu of camera.



1 Press the PRESET/AUTO button.

The PRESET/AUTO indicator will light and the PRESET/AUTO PAN window will be displayed.

2 Move the cursor to "AUTO PAN" using the arrows button and check the radio button next to "AUTO PAN" using the jog dial.

3 Select "OK" using the arrows button and press the SET button.

The PRESET/AUTO PAN window will be closed and auto function will start.

During auto action, it is impossible to register a preset position. To close the PRESET/AUTO PAN window, select "CANCEL" using the arrows button and press the SET button. The setting will be canceled and the PRESET/AUTO PAN window will be closed.

ABOUT THE EVENT FUNCTION

The event action will be performed when the following events occur.

- **Motion detection:** When motion is detected by the motion detection function (see below), this is stated as an event of motion detection.
- **Video Loss:** When a video signal supply is stopped because of a cable disconnection or malfunction of a camera, this is stated as an event of video loss.
- **Terminal alarm:** When a signal is supplied from an external device such as a door sensor to the ALARM terminal, this is stated as an event of the terminal alarm.
- **Command alarm:** When a command alarm is supplied from a PC connected to the SERIAL connector on the rear panel of this unit, this is stated as an event of the command alarm.

About the Motion Detection Function (VMD)

An alarm signal will be supplied when motion (luminance transition) is detected in a designated area. It is possible to save images recorded in the place where motion is detected, or send e-mails when motion is detected.
Refer to a system administrator for further information about the required settings for the motion detection function such as the settings of the detection area.

■ Action at an event occurrence

The event action will be performed according to the settings when an event occurs.
There are 2 event action modes for the alarm mode (ALARM) and the activity detection mode (ACT DET) for each event type. The event action will be different according to the event action mode set.
When an event of the alarm mode (ALARM) occurs, this unit activates the alarm action.

About the event action mode

● Alarm Mode (ALARM)

This mode announces an event occurrence outside. Action taken in the alarm mode is referred to as the alarm action.

● Activity Detection Mode (ACT DET)

This mode records images in the place where an event occurred without announcing it.

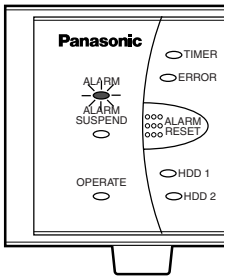
Event Action	Alarm Mode	Activity Detection Mode
Start recording	✓	✓
Displays event information on the monitor.	✓	–
Blinks the alarm indicator.	✓	–
Sounds the buzzer.	✓	–
Switches from a displayed image to the image from the location of the alarm occurrence.	✓	–
* Moves a camera to the preset position.	✓	✓
* Announces an event occurrence by sending e-mails.	✓	–
* Announces an event occurrence by the PS·Data/Serial (RS232C) commands.	✓	–
Supplies a signal from the ALARM connector or the ALARM/CONTROL connector on the rear panel of this unit (Alarm signal output).	✓	
Records the event log.	✓	✓
* Transmits images to an FTP server	✓	–

✓ : Applicable – : Not applicable

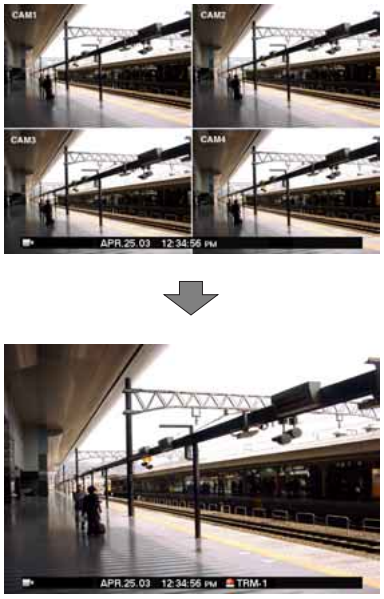
* : Available only when using a PC via a network (Refer to the Network Setup Instructions (PDF) for further information.)

■ Alarm Function

● Blinks the ALARM indicator on the front panel

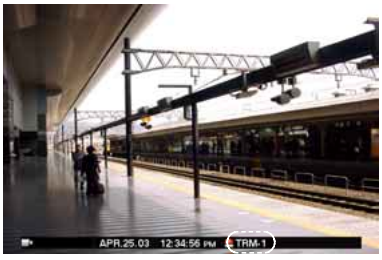


● Switches from the images displayed on monitor 1 and monitor 2 to the images from the location of the alarm occurrence (on a single screen)



● Displays the event information in the alarm display area on monitor 1 and the camera title display area on monitor 2

<Monitor 1>



<Monitor 2>

● Sounds the buzzer

Contact a system administrator about sounding duration.

● Announces an event occurrence to the connected system device (Alarm Output)

Sends a signal to the device connected to the ALARM/CONTROL connector, and the connected device such as a buzzer will be activated.

● Starts recording automatically

Starts recording the image from the location of the event occurrence automatically.

● Moves a camera to the preset position

A camera will move to the preset position registered in advance.

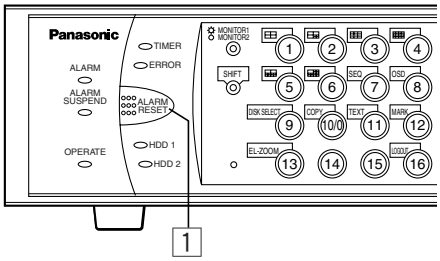
● Announces an event occurrence by sending e-mails

E-mails will be sent to addresses registered in advance. Refer to the Network Operating Instructions (PDF) on the provided CD-ROM.

■ Cancel the Alarm Action

When an alarm has occurred, this unit will start the alarm action according to the selected alarm action mode.
To cancel the alarm action, press the ALARM RESET button.
When "ON" is selected for "Alarm Auto Reset" (on the "Alarm Setup" menu of "Event"), the following will be performed automatically even if the alarm action is not canceled by pressing the ALARM RESET button on the front panel.

- The ALARM indicator will stop blinking and light steadily
- The displayed alarm information will disappear
- The buzzer will stop beeping

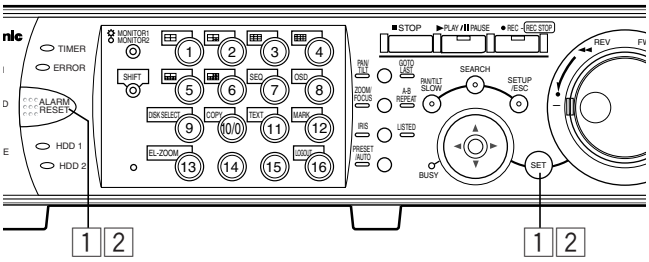


1 Press the ALARM RESET button to cancel the alarm actions.

The ALARM indicator will go off.

■ Suspend the Alarm Actions

It is possible to suspend (deactivate temporarily) the alarm actions even when an event has occurred.
This function will be useful when it is necessary not to activate the alarm actions for a certain period, such as when configuring the system. However, images and event logs will be recorded even when alarm actions are suspended.



● To suspend (deactivate temporarily) the alarm actions

1 Press both the ALARM RESET button and the SET button at the same time.

The ALARM SUSPEND indicator will light.

● To stop suspending the alarm actions

2 Press both the ALARM RESET button and the SET button at the same time again.

The ALARM SUSPEND indicator will go off.

Note: When an external switch is connected to the ALARM/CONTROL connector on the rear panel, it is possible to suspend the alarm actions using the external switch.
In this case, the alarm actions will be suspended when the external switch is on.
To stop suspending the alarm actions, set the external switch to off.

COPYING (Duplicate)

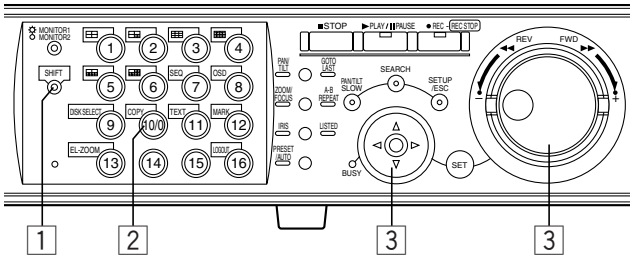
It is available to copy (duplicate) manually the recorded images in the copy area of the built-in hard disk to the external recording device (DVD-RAM disk, DVD-R disk, CD-R disk) connected to the unit.
It is recommended to make back-up copies on a regular basis for unexpected situations such as malfunction of the hard disk.
Manual copy is available during the following.

- While displaying live images
- While pausing playback of recorded images
- When displaying a searching window (Recording event list window, VMD search list window, Marking list window)
  (Manual copy is not available when a thumbnail window is displayed.)

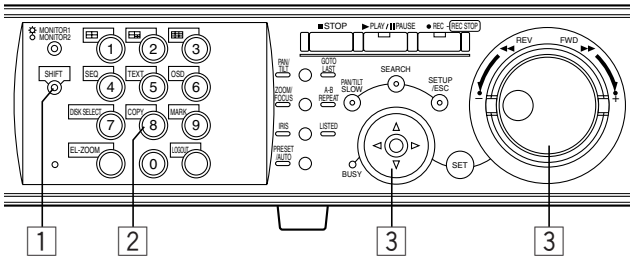
Notes:

- The auto copy function is available for copying recorded images to the DVD-RAM disk automatically. When the auto copy function is enabled, manual copy is not available. Refer to a system administrator for further information about the auto copy function.
- To copy during playback of recorded images, pause playback temporarily.
- To copy recorded images on the DVD-RAM disk, formatting (initializing) the DVD-RAM disk is required in advance. Refer to page 52 for the descriptions of how to format DVD-RAM disks.

[WJ-HD316]



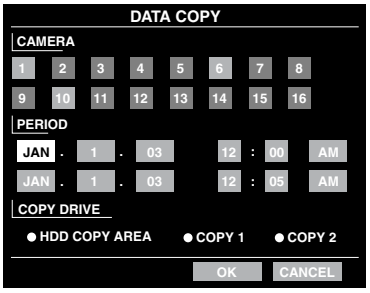
[WJ-HD309]



1 Press the SHIFT button.

The SHIFT indicator will light.
To copy recorded images during playback, pause the playback temporarily.

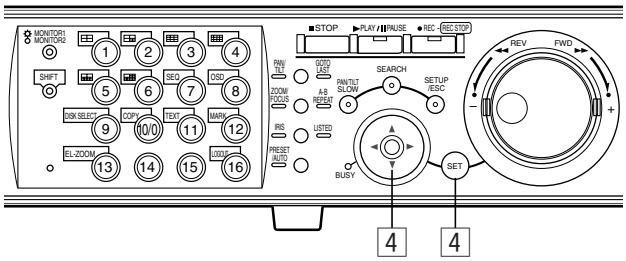
2 Press the COPY button.


DATA COPY
CAMERA
1 2 3 4 5 6 7 8
9 10 11 12 13 14 15 16
PERIOD
JAN . 1 . 03 12 : 00 AM
JAN . 1 . 03 12 : 05 AM
COPY DRIVE
● HDD COPY AREA
● COPY 1
● COPY 2
OK
CANCEL

The DATA COPY window will be displayed on monitor 2 and the VGA monitor.
The DATA COPY window will not be displayed when a thumbnail window is displayed.
In this case, display a list window using the arrows button (▼ ▲).

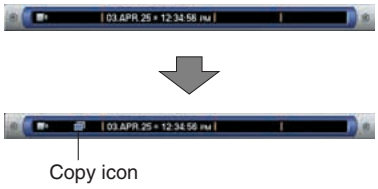
3 Perform the settings for data copy (camera channel, time range, the disk on which images are to be copied). Move the cursor to each setting item using the arrows button and select a parameter by rotating the jog dial.

Note: Time range to be set for "PERIOD" should be 30 minutes or less to copy images at one try.



4 Select the "OK" button using the arrows button and press the SET button.

The DATA COPY window will be closed and data copy will start.
The copy icon will be displayed on the task bar during copying.
To close the DATA COPY window, select "CANCEL" using the arrows button and press the SET button. The setting will be canceled and the DATA COPY window will be closed.



When the selected COPY DRIVE is not found, copying will not start and the DATA COPY window will not be closed even when the SET button is pressed after selecting "OK".

Important:

- To eject the disk, do the following during live images are displayed.

  <To eject the disk of COPY1>
  Confirm the SHIFT indicator is lit. Then, press the camera selection button [10/0] and [1] ([0] and [1] for the WJ-HD309) simultaneously for 2 seconds or more.

  <To eject the disk of COPY2>
  Confirm the SHIFT indicator is lit. Then, press the camera selection button [10/0] and [2] ([0] and [2] for the WJ-HD309) simultaneously for 2 seconds or more.

- Copying will be performed in the following order:
  Viewer Software → Images → Audio
  Depending on the set time range for "PERIOD", some of images and audio may not be copied.

DELETE DATA ON THE DISK

Perform the settings for the built-in hard disk of the unit, the optional extension unit and the DVD-RAM disk. These are the descriptions of how to delete recorded images on the hard disk and how to format a DVD-RAM disk.
Refer to a system administrator for further information about the other disks.

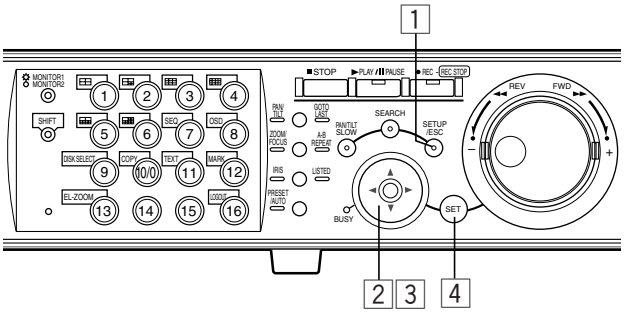
■ Deletion of recorded images saved on the hard disk manually

Delete recorded images saved in the normal area or the event area of the built-in hard disk or the optional extension unit manually.
By setting a time and date, images in the normal record area of the hard disk recorded before the set time and date will be deleted.
It is recommended to delete manually when available disk space is running out.

Important:

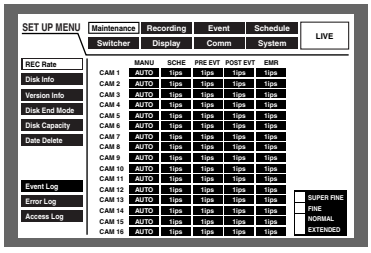
It is impossible to recover the deleted images.

Note: It is possible to delete recorded images automatically when the set days have passed from the day the image was recorded (Auto Delete). Refer to a system administrator for further information.

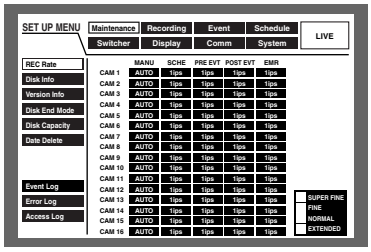


1 Press the SETUP/ESC button for 2 seconds or more.

The SETUP MENU will be displayed on monitor 2 and the VGA monitor.

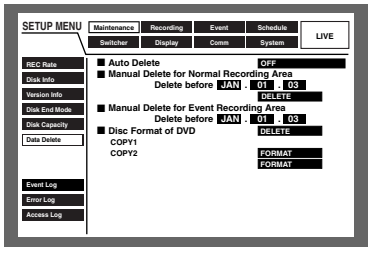


2 Move the cursor to "Maintenance" using the arrows button (▼ ▲ ◄ ►) and press the SET button.



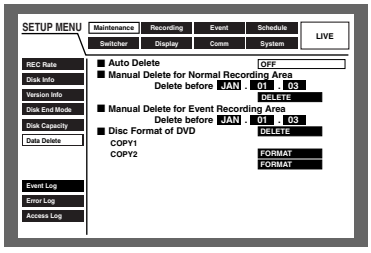
3 Move the cursor to "Data Delete" using the arrows button (▼ ▲).

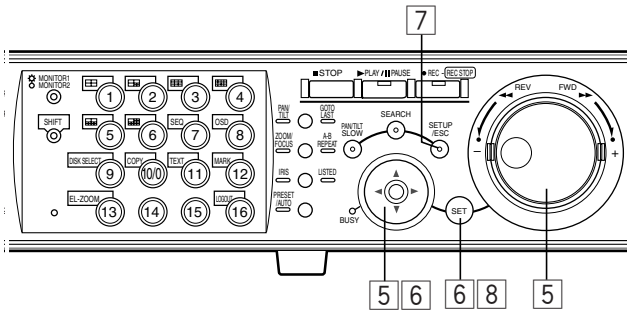
The "Data Delete" menu will be displayed.



4 Press the SET button.

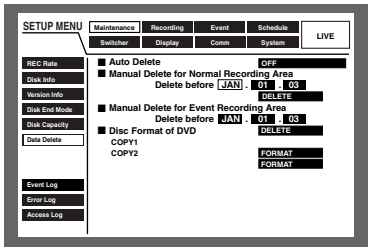
The cursor will be displayed on the "Data Delete" menu.



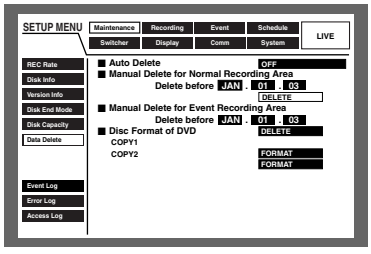


5 Move the cursor to "Manual Delete for Normal Recording Area" or "Manual Delete for Event Recording Area" using the arrows button, and set time and date using the jog dial.

The images recorded the day before the set time and date will be subject to be deleted.

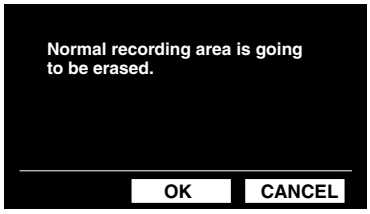


6 Move the cursor to "DELETE" using the arrows button and press the SET button.



The confirmation dialog window will be displayed.

7 Select "OK" using the arrows button and press the SETUP/ESC button.



To not delete, select "CANCEL".

8 Press the SET button for 2 seconds or more.

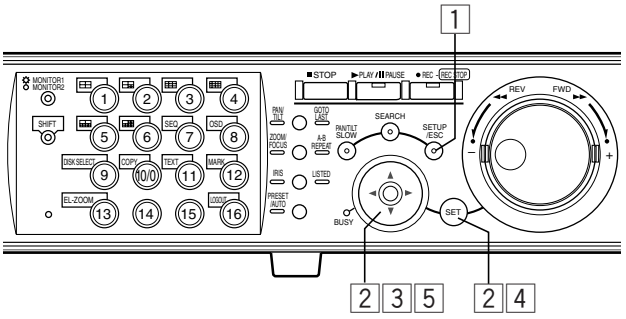
The SETUP MENU will be closed and the live images will be displayed.

FORMAT (INITIALIZE) A DVD-RAM DISK

To copy (duplicate) recorded images onto the DVD-RAM disk, formatting (initializing) the DVD-RAM disk is required in advance.
To delete images recorded on the DVD-RAM disk, formatting (initialization) of the DVD-RAM disk is also required.

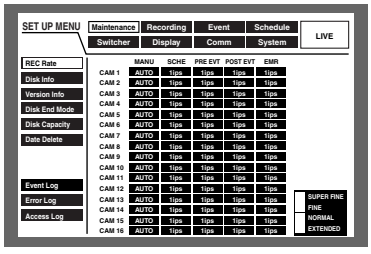
Important:

All data on the disk will be deleted if formatted (initialized). It is impossible to recover the deleted images.

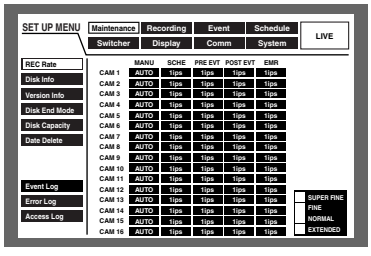


1 Press the ESC/SETUP button for 2 seconds or more.

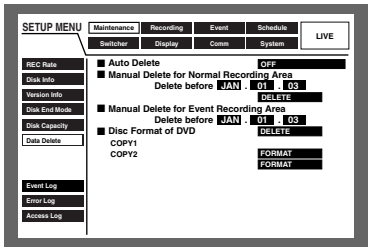
The SETUP MENU will be displayed on monitor 2 and the VGA monitor.



2 Select "Maintenance" using the arrows button and press the SET button.

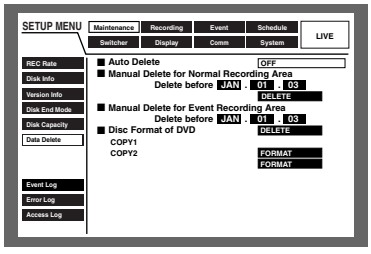


3 Select "Data Delete" using the arrows button (▼ ▲).

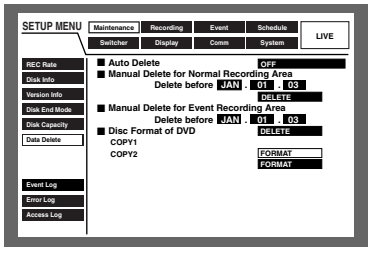


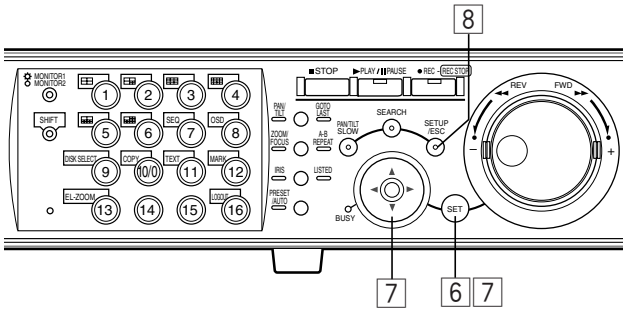
4 Press the SET button.

The cursor will be displayed on the "Data Delete" menu.



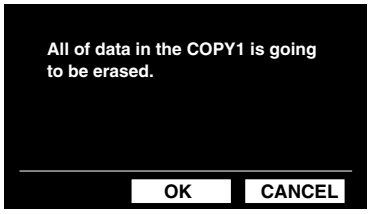
5 Select either"COPY1" or "COPY2" (port to which the DVD-RAM is connected) for "Disc Format of DVD" using the arrows button.





6 Press the SET button to select "FORMAT".

The confirmation dialog window will be displayed.



7 Move the cursor to "OK" using the arrows button and press the SET button to start formatting.

To stop formatting, select "CANCEL" and press the SET button.

During formatting, the status window will be displayed.

The status window will be closed automatically after completing formatting.

8 Press the SETUP/ESC button to close the SETUP MENU window.

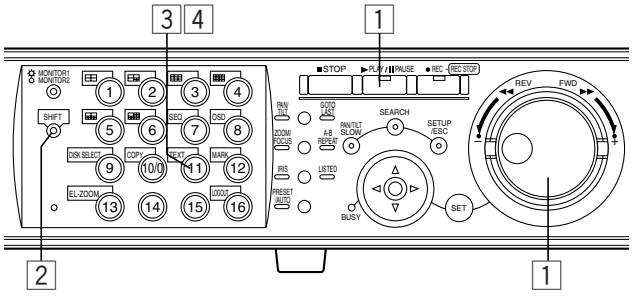
Live images will be displayed on monitor 2 and the VGA monitor.

DISPLAY/EDIT TEXT INFORMATION

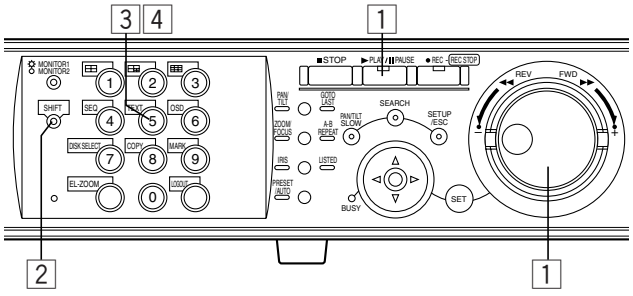
It is possible to attach text information to images when recording.
Entering 20 characters for a line (up to 10 lines, with a total of 200 characters) is possible.
These are the descriptions of how to display/edit the attached text information for images.

Note: Displaying/editing text information is possible during the following.
- While pausing playback on a single screen
- While displaying the recording event list window

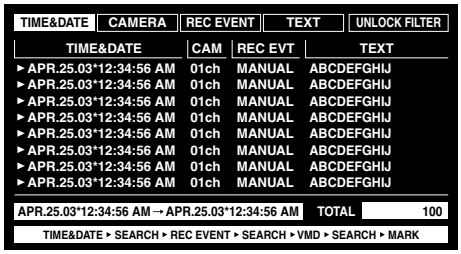
[WJ-HD316]



[WJ-HD309]



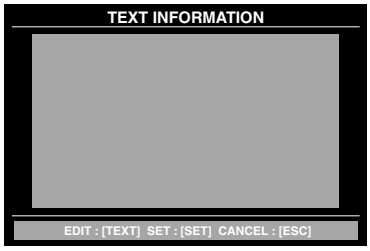
1 <While pausing playback on a single screen>
Press the PLAY/PAUSE button to stop playback.
<While displaying the recording event list window>
Select a desired recording event by rotating the jog dial.


TIME&DATE
CAMERA
REC EVENT
TEXT
UNLOCK FILTER
TIME&DATE
CAM
REC EVT
TEXT
► APR.25.03*12:34:56 AM 01ch MANUAL ABCDEFGHIJ
► APR.25.03*12:34:56 AM 01ch MANUAL ABCDEFGHIJ
► APR.25.03*12:34:56 AM 01ch MANUAL ABCDEFGHIJ
► APR.25.03*12:34:56 AM 01ch MANUAL ABCDEFGHIJ
► APR.25.03*12:34:56 AM 01ch MANUAL ABCDEFGHIJ
► APR.25.03*12:34:56 AM 01ch MANUAL ABCDEFGHIJ
► APR.25.03*12:34:56 AM 01ch MANUAL ABCDEFGHIJ
► APR.25.03*12:34:56 AM 01ch MANUAL ABCDEFGHIJ
APR.25.03*12:34:56 AM→APR.25.03*12:34:56 AM
TOTAL 100
TIME&DATE ► SEARCH ► REC EVENT ► SEARCH ► VMD ► SEARCH ► MARK

2 Press the SHIFT button.

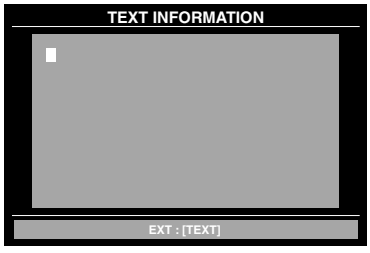
The SHIFT indicator will light.

3 Press the TEXT button to display the TEXT INFORMATION window.

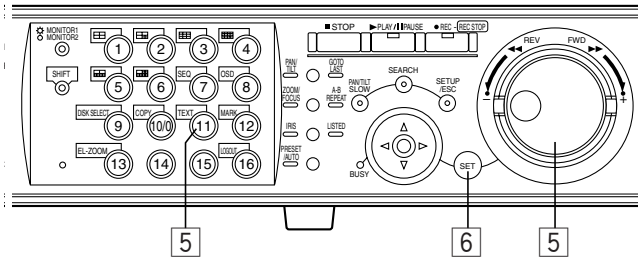


Text information attached to the paused playback image or text information attached to the selected recording event will be displayed.
To close the TEXT INFORMATION window, press the SETUP/ESC button or the SET button.

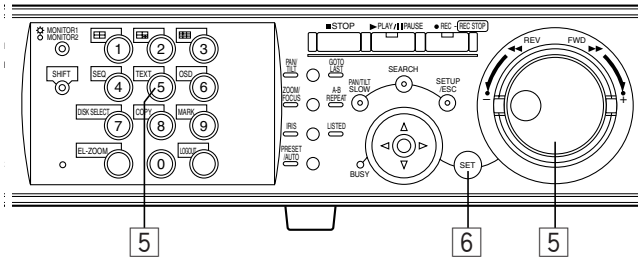
4 Press the TEXT button again to edit text information.



[WJ-HD316]



[WJ-HD309]

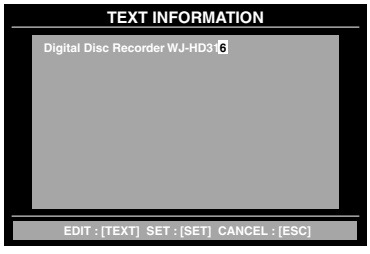


5 Edit text information using the arrows button and the jog dial.

- **To insert a character**
  Move the cursor to a desired point where a character is to be inserted using the arrows button, and select a character using the jog dial.
- **To delete a character**
  Move the cursor to a character to be deleted using the arrows button, and press the STOP button.
- **To delete all characters**
  Press the STOP button for 2 seconds or more.
- **Available characters**
  The following characters can be entered:
  A B C D E F G H I J K L M N O P Q R S T U V W X Y Z a b c d e f g h i j k l m n o p q r s t u v w x y z 0 12 3 4 5 6 7 8 9!"#$%' ()*+, - ./: ;<=>?@[\ ] ^ _`{|}~

  Press the TEXT button after editing text.

6 Press the SET button to apply the edited characters.



To cancel the edit, press the SETUP/ESC button. The edited characters will not be applied.

Important:

It is impossible to edit text information using the system controller.

ERROR/WARNINGS

- **The "error" status**
  When a fatal error (one that might cause the system to go down) has occurred, the ERROR indicator will blink red.

- **The "warning" status**
  When an error (even though it has not caused the system trouble yet, but which may become a fatal error) has occurred, the ERROR indicator will blink orange.

Indication	Status	Description	Solution
ALT-*	Error	Recorded image has been altered. Playback will be paused.	Press the ALARM RESET button to cancel the error status. Press the PLAY/PAUSE button to resume playback.
R-ERROR	Error	Failed to read data from the HDD. The HDD may be malfunctioning.	Press the ALARM RESET button to cancel the error status. Contact the dealer to replace the hard disk.
W-ERROR	Error	Failed to write data on the HDD.	Press the ALARM RESET button to cancel the error status. Contact the dealer to replace the hard disk.
SMART	Warning	The hard disk may be malfunctioning and may not work correctly.	Press the ALARM RESET button to cancel the warning status. Contact the dealer to replace the hard disk.
H-METER	Warning	The set time for the HOUR METER has passed. (Refer to page 93.) It may be reaching the end of the hard disk's lifetime.	Press the ALARM RESET button to cancel the warning status. Contact the dealer to replace the hard disk.
THERMAL	Warning	Thermal error of the unit or the optional extension unit has been detected.	Press the ALARM RESET button to cancel the warning status. If thermal errors occur frequently, the unit may be malfunctioning. Contact the dealer.
POWER	Warning	The power outage alert signal is supplied from the uninterruptible power supply system (UPS). Internal processing will start when the set time for "Shutdown Time" on the "Basic Setup" menu of "System" has passed after having received the power outage alert signal. (Refer to page 120.) When the internal processing starts, recording will stop and all operations will be invalid.	Press the ALARM RESET button to cancel the warning status. The unit will start operation automatically after the UPS starts power supply.
#-nn% (available disk space is running out) #-FULL (no available disk space)	Error Warning	The hard disk is almost full or completely full.	Press the ALARM RESET button to cancel the error or the warning status. Initialize or replace the hard disk. (Refer to page 127, 132.) When initialized, all recorded data will be deleted. It is recommended to copy the data using an external recording device.
		The DVD-RAM disk is almost full or completely full.	Press the ALARM RESET button to cancel the error or the warning status. Initialize the DVD-RAM disk. (Refer to page 52.) When initialized, all recorded data will be deleted.
		The CD-R or DVD-R disk is almost full or completely full.	Press the ALARM RESET button to cancel the error or the warning status. Replace the disk with new one.

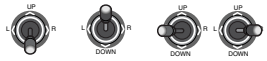
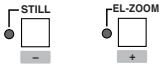
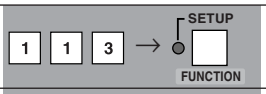
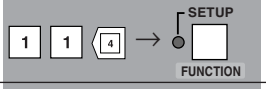
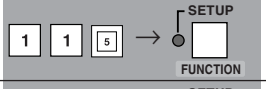
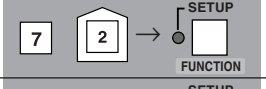
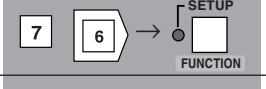
Indication	Status	Description	Solution
MEDIUM-n	Warning	The external recording device is not operable because no disk or different format disk has been inserted, etc.	Press the ALARM RESET button to cancel the warning status. Confirm that a disk has been inserted, or check the inserted disk format.
REMOVE	Error	An error has occurred on the hard disk and the hard disk has been unmounted from the system automatically.	Press the ALARM RESET button to cancel the error status. Contact the dealer.
FAN	Warning	The fan of this unit or the optional extension unit is malfunctioning. It may produce an increase in temperature in the unit and cause malfunction of the HDDs.	The warning status will be canceled automatically after around 10 minutes of recovery. Contact the dealer.

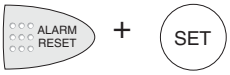
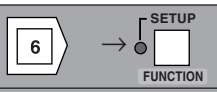
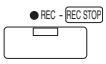
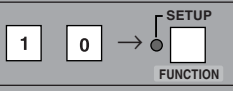
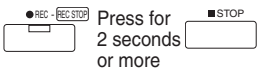
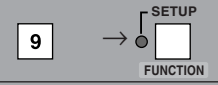
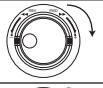
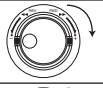
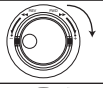
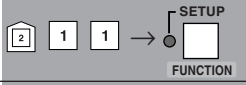
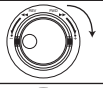
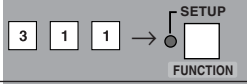
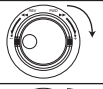
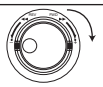
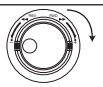
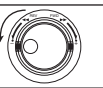
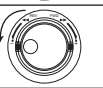
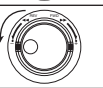
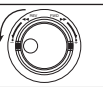
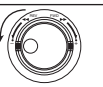
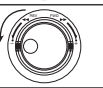
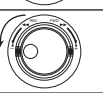
* : Camera number
\# : Partition number (Refer to page 14.)
nn : Available disk space (percentage)
n : COPY port number to which an external recording device is connected

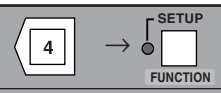
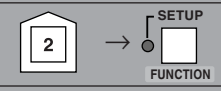
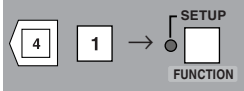
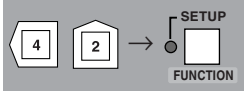
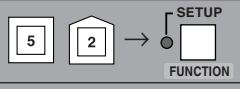
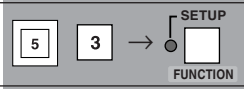
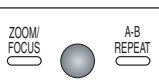
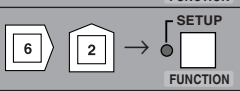
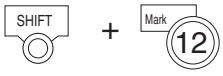
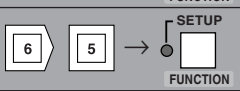
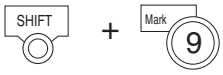
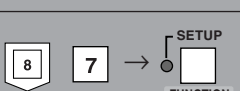
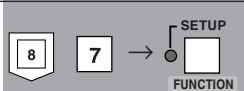
OPERATION USING A SYSTEM CONTROLLER

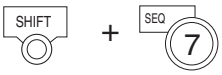
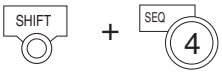
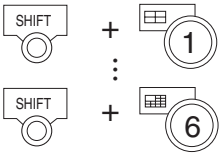
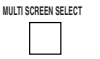
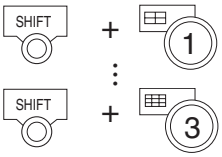
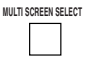
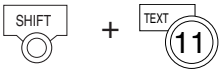
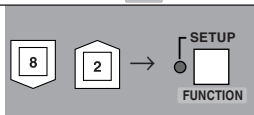
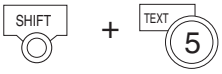
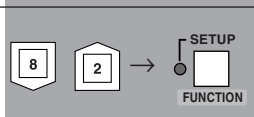
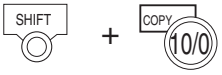
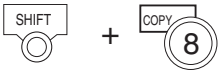
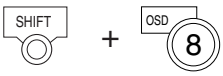
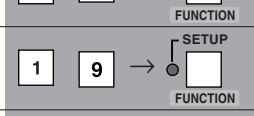
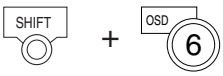
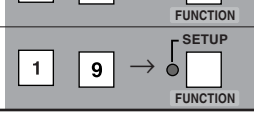
It is possible to operate this unit using a PS·Data compatible system controller.
The following are the descriptions of how to operate this unit using the system controller WV-CU360C.
To operate this unit using a PS·Data compatible system controller, perform the required settings in advance. Refer to a system administrator for further information.

Note: To perform the operation with buttons with the shadowed background (■), press the SHIFT button of the system controller to light the SHIFT indicator on the right side of the SHIFT button.

Item	WJ-HD316/WJ-HD309	WV-CU360C	Note
Open/Close the SETUP MENU			Press the button [0] to delete a character in the SETUP MENU.
Select an item			
Change the set parameter	Rotate the jog dial		
Change the cursor position			
Press a button on the pop-up menu			
Return to the previous menu			
Summer time OFF	Set on the SETUP MENU		
Summer time ON	Set on the SETUP MENU		
Timer recording OFF	Set on the SETUP MENU		
Timer recording EXT	Set on the SETUP MENU		
Display the recording event list			Press the [5] button to display the searching filter window. Press the SET button to start playback.
Display the VMD search list			Press the [5] button to display the VMD search list. Press the SET button to start playback.
Display the marking list			Press the SET button to start playback.
Display the menu for playback by designating time and date			Press the SET button to start playback.
Move the cursor to search for an item	Press ◄ or ►.		
Switch displaying the list window and the thumbnail window alternately			
Display a list/thumbnail Move the cursor to select	Rotate the jog dial		

Item	WJ-HD316/WJ-HD309	WV-CU360C	Note
Close the searching window			Pressing the SETUP button can also close the searching window.
Alarm reset			
Alarm suspension			
Manual recording			
Stop manual recording	 Press for 2 seconds or more		Available only during recording
Stop playback/manual recording			Both recording and playback will be stopped if operating the controller as shown on the left.
Play			Press the SET button to play the selected result from the searching window.
Stop playback			
Play at normal speed	During playback  Rotate the shuttle ring		
Play at 2x speed	During playback  Rotate the shuttle ring		
Play at 5x speed	During playback  Rotate the shuttle ring		
Play at 10x speed	During playback  Rotate the shuttle ring		
Play at 20x speed	During playback  Rotate the shuttle ring		
Play at 50x speed	During playback  Rotate the shuttle ring		
Play at 100x speed	During playback  Rotate the shuttle ring		
Reverse play at normal speed	During playback  Rotate the shuttle ring		
Reverse play at 2x speed	During playback  Rotate the shuttle ring		
Reverse play at 5x speed	During playback  Rotate the shuttle ring		
Reverse play at 10x speed	During playback  Rotate the shuttle ring		
Reverse play at 20x speed	During playback  Rotate the shuttle ring		
Reverse play at 50x speed	During playback  Rotate the shuttle ring		
Reverse play at 100x speed	During playback  Rotate the shuttle ring		

Item	WJ-HD316/WJ-HD309	WV-CU360C	Note
Pause playback			Available only during playback
Skip to the next frame	During pausing Rotate the jog-daial		Available only during pause
Skip to the previous frame	During pausing Rotate the jog-daial		Available only during pause
Skip forward	During playback Rotate the jog-daial		The point to be skipped to will be different between normal playback and filtered playback.
Skip backward	During playback Rotate the jog-daial		The point to be skipped to will be different between normal playback and filtered playback.
Mark start point for the A - B repeat playback			Available only during playback
Mark end point for the A - B repeat playback			Available only during playback
Cancel the A-B repeat playback			Available only during playback
Skip to the latest recorded image			Available only during playback
Filtering off			Available only during the filtered playback
Filtering on			Available only when it is possible to switch to the filtered playback
Mark a point (For the WJ-HD316)			
Mark a point (For the WJ-HD309)			
Select the normal recording area/event recording area of the HDD (For the WJ-HD316)			
Select the normal recording area/event recording area of the HDD (For the WJ-HD309)			
Select the copy area of the HDD (For the WJ-HD316)			
Select the copy area of the HDD (For the WJ-HD309)			
Select monitor 1			
Select monitor 2			

Item	WJ-HD316/WJ-HD309	WV-CU360C	Note
Sequential display ON (For the WJ-HD316)			It is possible to stop the sequential display by pressing a camera selection button.
Sequential display ON (For the WJ-HD309)			It is possible to stop the sequential display by pressing a camera selection button.
Select a camera (For the WJ-HD316)	Camera selection buttons (1 - 16)	Camera number →	
Select a camera (For the WJ-HD309)	Camera selection buttons (1 - 9)	Camera number →	
Select a multi-screen (For the WJ-HD316)			Switches in the following order each time the button is pressed 1 - 4 CH → 5 - 8 CH → 9 - 12 CH → 13 - 16 CH → 1 - 7 CH → 1 - 9 CH → 10 - 16 CH → 1 - 13 CH → 1 - 16 CH
Select a multi-screen (For the WJ-HD309)			Switches in the following order each time the button is pressed 1 - 4 CH → 5 - 8 CH → 9 CH → 1 - 7 CH → 1 - 9 CH
Zoom ON/OFF			Zooming level changes in this order: 2x → 4x → 1x
Text information display ON (For the WJ-HD316)			It is possible to turn the text information display off by pressing the ESC button when displaying text information or when pausing playback.
Text information display ON (For the WJ-HD309)			It is possible to turn the text information display off by pressing the ESC button when displaying text information or when pausing playback.
Display the DATA COPY menu (For the WJ-HD316)			Available only when displaying live images or a list, or when pausing playback
Display the DATA COPY menu (For the WJ-HD309)			Available only when displaying live images or a list, or when pausing playback
Cancel copying (For the WJ-HD316)	During copying		
Cancel copying (For the WJ-HD309)	During copying		
Switch displayed information (For the WJ-HD316)			
Switch displayed information (For the WJ-HD309)			

OPERATION USING A PC

It is possible to perform the settings or operate the unit using a web browser installed on a PC when this unit is connected to a network.
The available features and the system requirements of a PC are as follows.
Refer to the Network Operating Instructions (PDF) on the provided CD-ROM.

■ Features

It is possible to operate this unit using a web browser in much the same way as using the buttons on the front panel of this unit.
The following functions are available when using a PC via a network as well as the functions operable using the buttons on the front panel of the unit.

● Downloading/transmitting images

It is possible to download (save) the currently displayed image in the web browser window onto the hard disk of a PC. By establishing an FTP server, it is possible to transmit images to a designated FTP server. When an event occurs, it is possible to transmit images from the camera installed in the place where the event occurred.

● Event notification function

When an event occurs, it is possible to send e-mails to designated addresses to notify of the event occurrence. It is also possible to send an e-mail with a recorded image of the place where the event occurred.

● Host authentication

It is possible to restrict devices from operating this unit if their IP addresses are not registered.

■ System Requirements of a PC

It is recommended to operate this unit using a PC that meets the following system requirements.

OS:
One of the following operating systems:
Microsoft® Windows® 2000 Professional SP4
Microsoft® Windows® XP Professional or Home Edition SP1

PC:
IBM PC/AT Compatible

CPU:
Intel Pentium, IV 1.4 GHz or faster

Memory:
512 MB or more

Monitor:
1024 x 768 pixels or more, HIGH color 16 bit or more

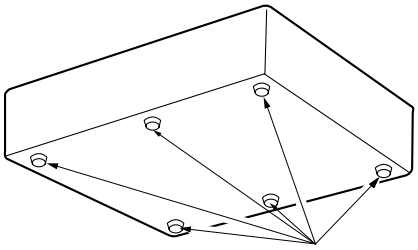
Interface:
Built-in network interface card compatible 10/100 Mbps

Recommended web browser:
Microsoft Internet Explorer 5.5SP2, 6.0 SP1
Other web browsers are not compatible with this unit.

Important:
The plug-in software must be installed. Install the plug-in software from the provided CD-ROM.
Refer to "readme.txt" on the provided CD-ROM for the descriptions of how to install it.

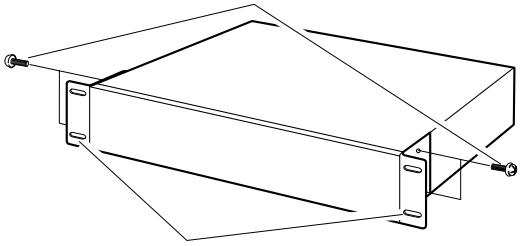
INSTALLATION IN THE RACK

1. Remove the rubber legs (6 pcs.) on the bottom of the unit.
• Use a flat-blade screwdriver and remove the screws.

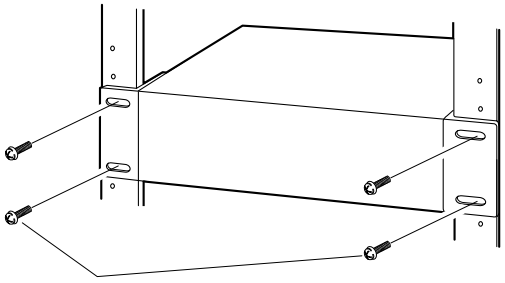


Remove the rubber legs.

2. Install the rack mounting brackets on both sides of the unit.
• Using the mounting screws (4 pcs.) for the rack mounting brackets, fix them firmly.



3. Install the unit in the rack.
• Fix the unit firmly with the rack mounting screws (4 pcs.).



Rack mounting screws
For our rack: Nominal diameter 5 tapping (accessory)

Important:

- The cooling fan inside the unit is perishable and must be replaced periodically.
- Do not block the ventilation openings or slots in the cover to prevent the unit from overheating.
- If the rack is subject to vibration, secure the rear of the unit to the rack using additional mounting brackets (not included).

MANAGEMENT OF USERS/HOSTS

It is necessary in advance to register users and PCs (hosts) who access this unit via a network such as LAN.
Up to 32 users and 8 hosts can be registered.
The following information can be registered as user information and host information.

Item	Description	Note
User name	Name of user who log in this unit. Enter this in the login window.	Item to be set only for user registration
Host IP address	IP address of a PC that accesses this unit. Only PCs with registered IP addresses can access this unit if ON is selected for "Host Authentication" and OFF is selected for "User Authentication".	Item to be set only for host registration
Password	Password of user who log in this unit. Enter this in the login window.	Item to be set only for user registration
Level	Level of users or hosts for operable functions. Refer to page 125 for further information.	
Priority	Priority of controllable functions. When two or more users/hosts performed the same operation, only a user/host with the highest priority can perform the operation.	Determine the priority in the following cases: • A user tries to log in after other user has already logged in. • A user tries to control a camera that is being controlled by other user.
Default screen	Startup display to be displayed on the monitor 1, monitor 2 and the VGA monitor after login.	
Camera partitioning	Controllable range for each camera channel.	

For the set items above, the unit will work differently depending on whether the unit is operated directly or operated via a network as follows.

● When the unit is operated directly

Operate using the monitor connected with this unit. There are 3 ways to operate this unit as follows:

- Operate using the buttons on the front panel of the unit
- Operate using a PS·Data compatible controller
- Operate using a PC connected to the SERIAL connector (RS232C) on the rear panel of the unit

It is impossible to log in the unit simultaneously by the above ways (except for using the same user name to log in).
When a user tries to log in after other user has already logged in the unit, the unit will work as follows according to the setting for "Priority" of "System".

Setting for "Priority"	Description
Follow the priority	When a user's priority is higher than the one of the other user who has already logged in, this user can log in and other user who has already logged in will be forced to log out. When a user's priority is lower than the one of the other user who has already logged in, this user cannot log in.
Pre-priority	When other user has already logged in, any user except administrators cannot log in regardless of priority. When an administrator logged in, the other user who has already logged in will be forced to log out.
Post-priority	Any user can log in regardless of priority.

Notes:

- When a user is operating this unit using a PS·Data compatible controller, this user can log in automatically as a PSD user set for "PSD User" of "System" on the SETUP MENU.
- When a user logged in this unit using a PS·Data compatible controller and didn't operate the unit for around 2 minutes, this PSD user will be forced to log out.
- When ON is selected for "Auto Login" of "System", a user who logged in automatically will be forced to log out if this user didn't operate the unit for around 30 seconds.

● When the unit is operated using a PC via a network

Operate using a PC via a network. Up to 8 hosts (PCs) can access the unit.
When a host tries to log in after 8 hosts have already logged in the unit, the unit will work as follows according to the setting for "Priority" of "System".

Setting for "Priority"	**Description**
Follow the priority	When a host's priority is higher than the one of the other host who has already logged in, this host can log in and other host who has already logged in will be forced to log out. When a host's priority is lower than the one of the other host who has already logged in, this host cannot log in.
Pre-priority	Any host cannot log in regardless of priority.
Post-priority	Any host can log in regardless of priority.

When accessing the unit using a PC via a network, the unit will work as follows according to the setting for "User Authentication" and "Host Authentication" of "NW Setup 1".

Setting for "User Authentication"	**Setting for "Host Authentication"**	**User/Host to log in**	**Note**
OFF	OFF	Log in the unit as an administrator.	
ON	OFF	Log in the unit as a registered user.	The login window will be displayed.
OFF	ON	Log in the unit as a registered host.	The login window will not be displayed.
ON	ON	Log in the unit as a registered host. User authentication will not be performed. When the host is not registered, log in as a registered user.	The login window will be displayed when accessing using a not registered host.

OPERATING THE UNIT FOR THE FIRST TIME

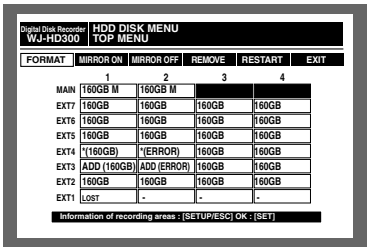
Important:

When connecting an optional extension unit (the WJ-HDE300 series), turn on the power of the extension unit before turning the power of this unit on.

1 Turn on the POWER switch.

2 Press the SET button during the system check complete window is displayed.

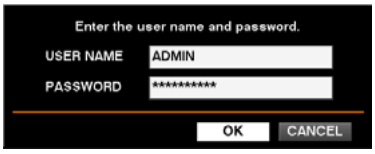
The HDD DISK MENU window will be displayed.
Perform the settings with this menu according to your needs.
Refer to page 16 for further information.



After completing the settings, press any button to close the HDD DISK MENU.
The login window will be displayed.
When "ON" is selected for "Auto Login" of "Basic Setup" on the "System" menu, the login window will not be displayed. (The default setting is ON.)

3 Enter a user name and password.

Live images will be displayed after logging in.
Refer to page 16 for further information about the user name and password.

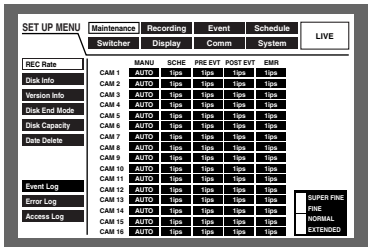


Notes:

- With the default setting, the disk space is set as the normal recording area. Perform the settings for each recording area according to your needs.
- The default user name and password are as follows:
  User name: ADMIN
  Password: 12345
- To enhance the security, change the password for an administrator periodically.

4 Press the SETUP/ESC button for 2 seconds or more.

The SETUP MENU will be displayed.
Adjust the clock of the unit with this menu.
Refer to page 17 for further information about clock adjustment.



5 With the default setting, the unit is ready to start manual recording. Perform the settings for recordings or event actions according to your needs.

Preparation for maintenance (HDD replacement, installation, etc.)

When maintaining (HDD replacement, installation, etc.) without turning the power of the unit off, carry out the following operation after setting the HDD SAFETY MODE to ON. (The default setting is ON.)
This can be set on the "Disk Info" menu of "Maintenance".
Refer to page 93 for further information.

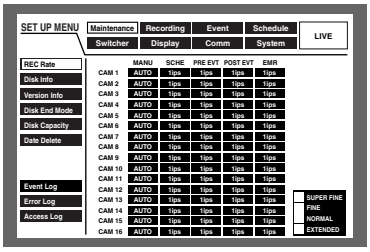
Important:

After completing the installation or the maintenance, set the HDD SAFETY MODE to OFF.

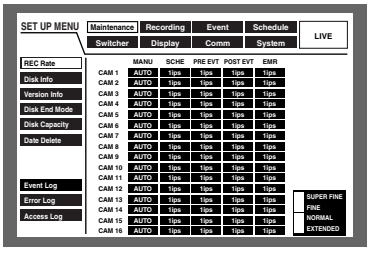
Do the following before starting operation when maintaining (HDD replacement, installation, etc.).

1 Press the SETUP/ESC button for 2 seconds or more.

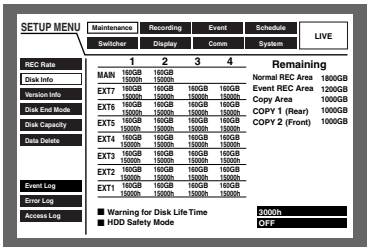
The SETUP MENU will be displayed on the monitor 2 and the VGA monitor.



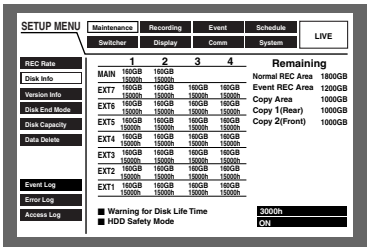
2 Select "System" using the arrows button and press the SET button.



3 Move the cursor to "Disk Info" using the arrows button (▼ ▲) and press the SET button.



4 Move the cursor to "HDD Safety Mode" and rotate the jog dial to select "ON ".



5 Press the SETUP/ESC button for 2 seconds or more.

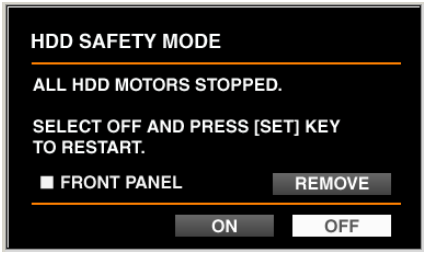
The SETUP MENU will be closed.
The unit will restart automatically and the HDD SAFETY MODE window will be displayed.
The HDD safety mode will begin.

The camera selection buttons (1 - 16 for the WJ-HD316, 1 - 9, 0 for the WJ-HD309) will light green and orange (for 2 seconds each) alternately.
The following window will be displayed after around 30 seconds.

Start maintenance after this window is displayed.
The procedures are different between the replacement of the hard disks and the installation of the unit (rack mounting/unmounting).
Refer to the following descriptions.

When the system check has been completed, the HDD SAFETY MODE window (as shown below) will be displayed. The camera selection buttons on the front panel (1 - 16 for the WJ-HD316, 1 - 9, 0 for the WJ-HD309) will light green and orange (for 2 seconds each) alternately.

Move the cursor to OFF using the arrows button and press the SET button.



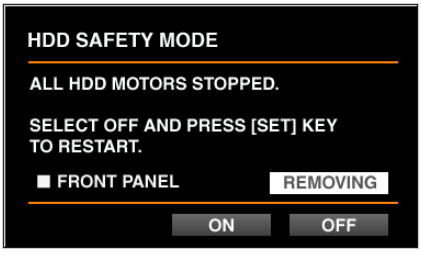
The unit will restart automatically and the system check complete window will be displayed.
When the system check complete window is displayed, carry out the procedure described on page 66 (start from 1).

Important:

Detach the cable from the front panel after confirming that "REMOVING" is displayed. Otherwise, it may cause malfunction.

● When replacing the built-in hard disk of the unit

Move the cursor to "REMOVE" using the arrows button and press the SET button.
The "REMOVE" indication will change to the "REMOVING".
The power supply to the front panel will be cut and the unit will be unable to operate with the front panel.



Detach the cable from the front panel and start replacing the built-in hard disk.
Start from step 2 on page 127 to replace the built-in hard disk.

The "REMOVING" indication will return to the "REMOVE" by attaching the cable to the front panel. The power will be supplied to the front panel and the unit will be enabled to operate with the front panel.

● When replacing the built-in hard disk of the extension unit

With displaying the HDD SAFETY MODE window in step 5, start replacing the built-in hard disk of the optional extension unit.
Refer to the operating instructions of the extension unit for the descriptions of how to replace the hard disk.

● When installing/uninstalling the unit into/from the rack (rack mounting/unmounting)

With displaying the HDD SAFETY MODE window in step 5, start installing/uninstalling the unit.

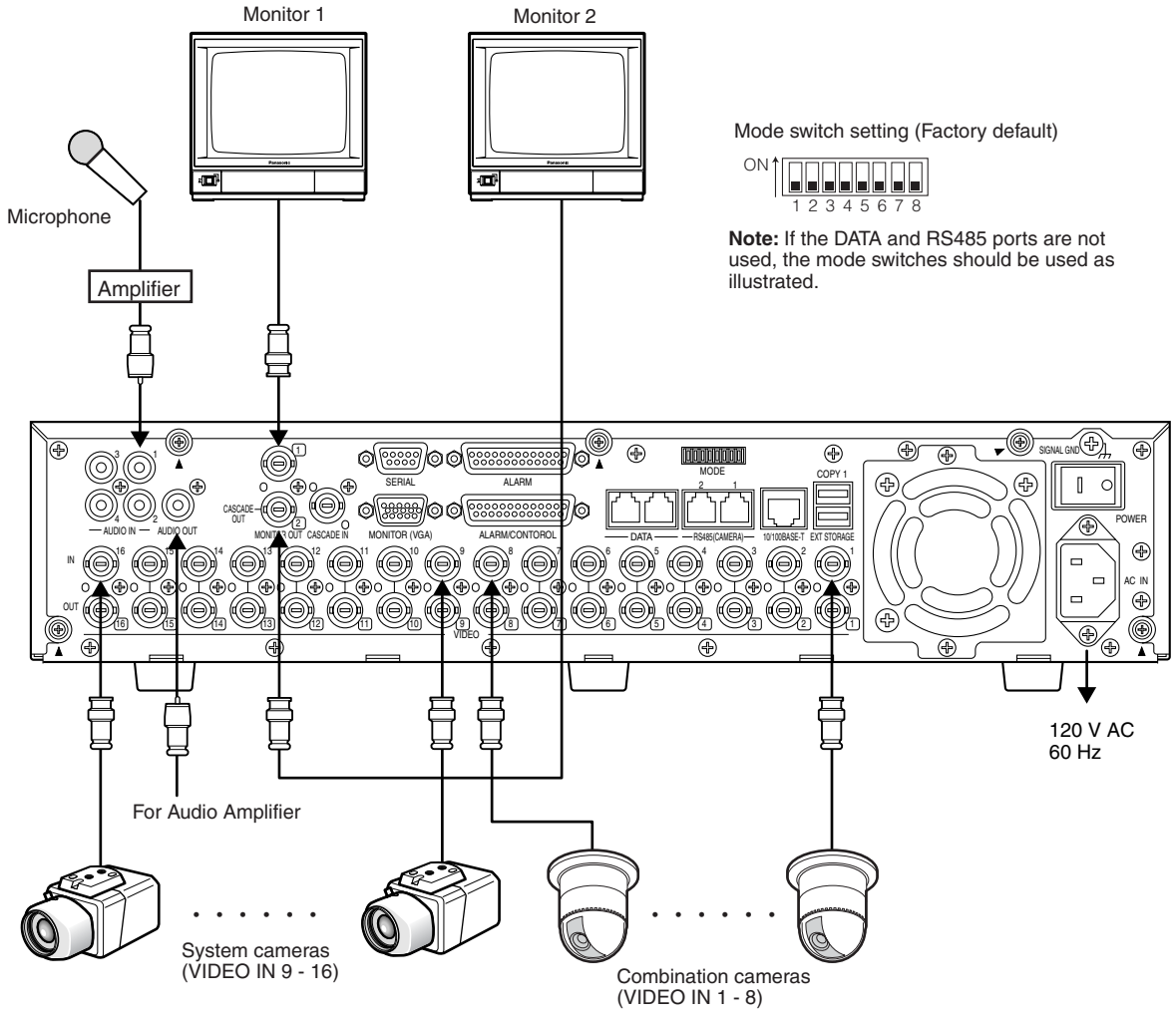
■ Connections when the unit is used independently

An example of connections is shown below when the unit is used independently.

Important:

- The power plug should be connected last.
- When connecting combination cameras , connect them to the video input connectors 1 - 8 when using the WJ-HD316 or 1 - 6 when using the WJ-HD309 (for coaxial communication).

● Examples of connections

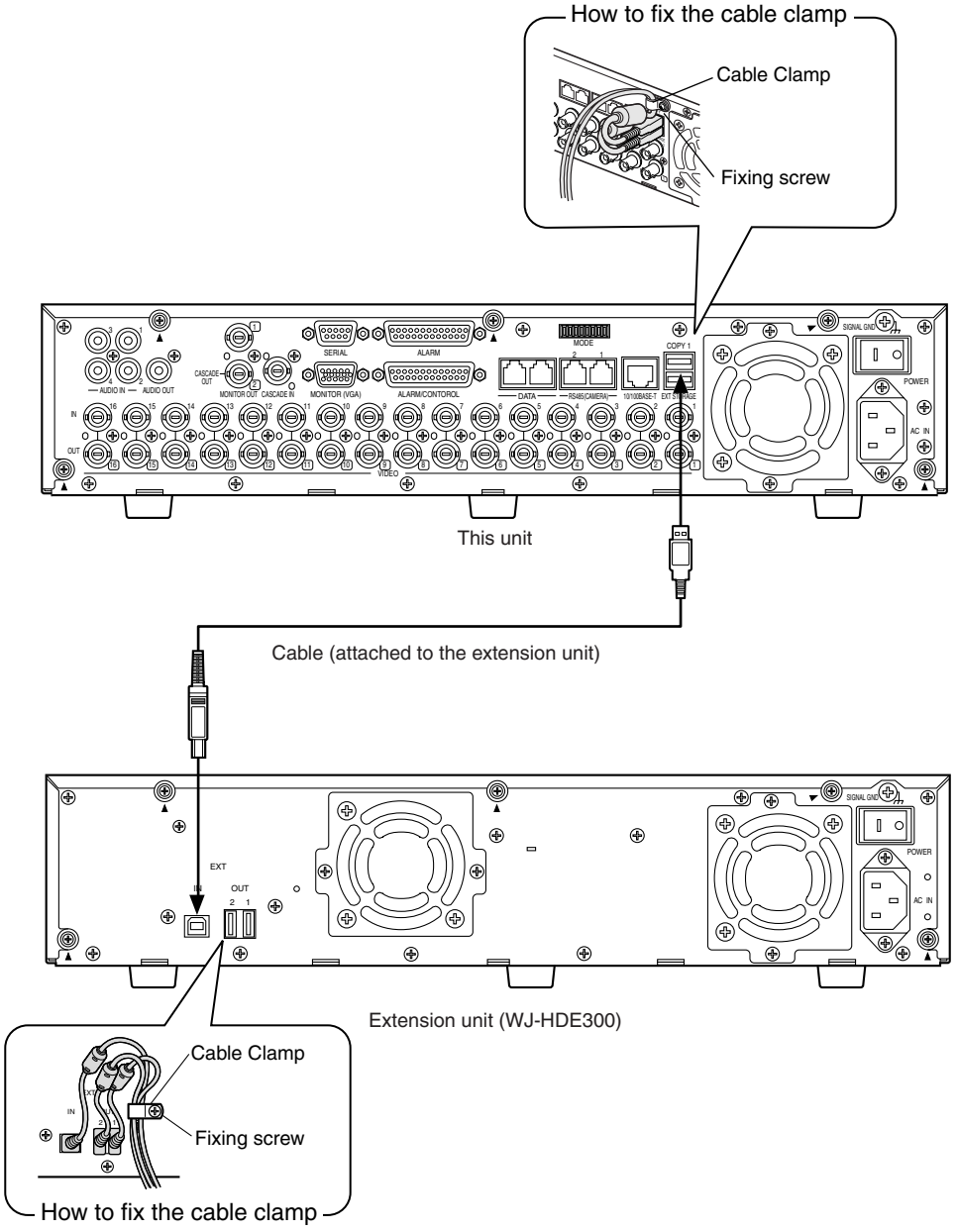


■ Connections with an extension unit

An example of connections is shown below when the unit is used together with an optional extension unit.
This unit can be connected with up to seven extension units.
Connect the EXT IN port on the rear panel of the extension unit and the EXT STORAGE port on the rear panel of this unit using the cable provided with the optional extension unit.

Important:

- Use the cable provided with the optional extension unit.
- Fix the cables with the cable clamp (provided with each unit) to prevent disconnection or unstable connections that may cause recording failures or an unstable system.

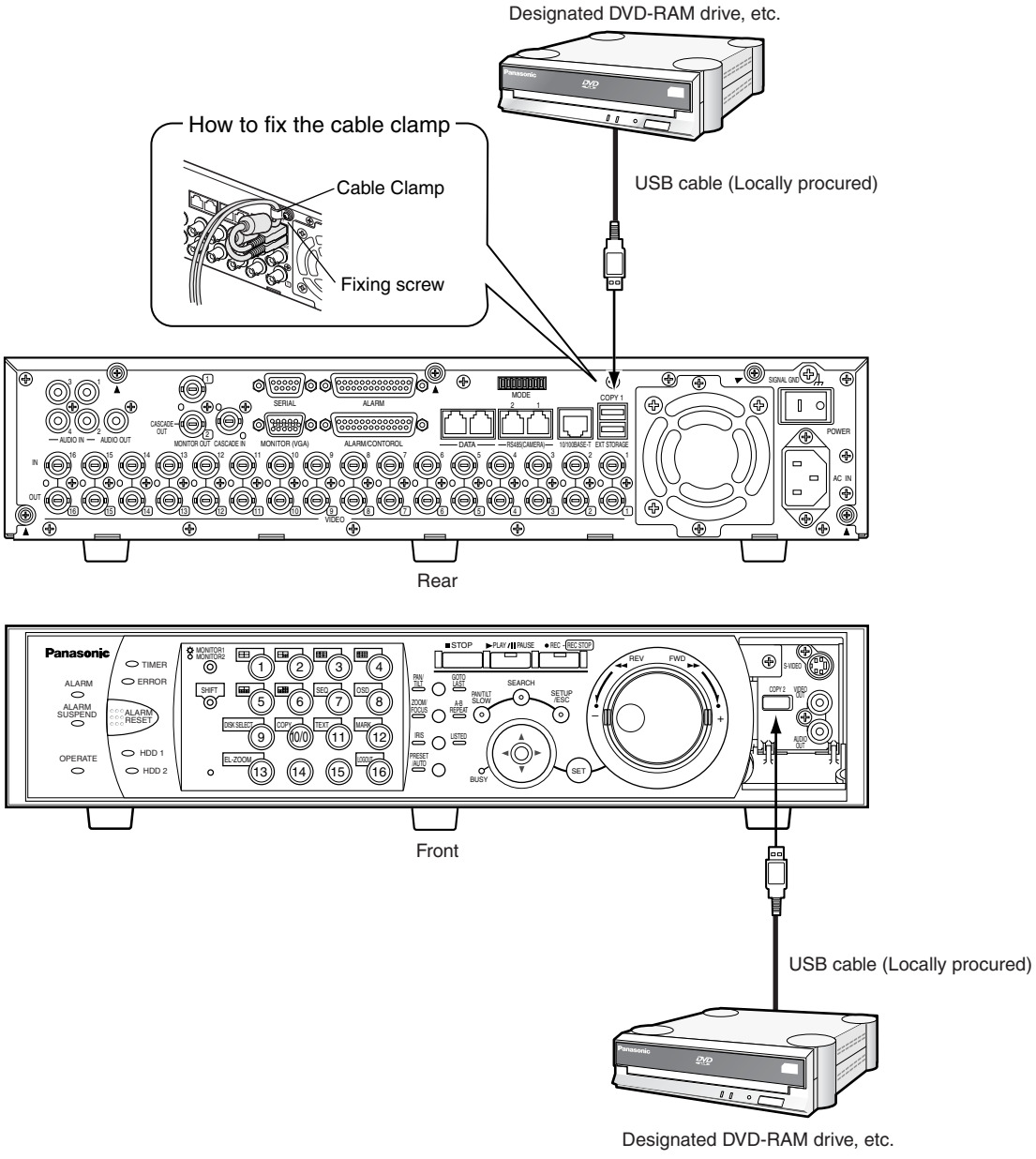


■ Connections with DVD-RAM, CD-R, and DVD-R drives

This is an example of connection when the unit is used together with the designated DVD-RAM, DVD-R and CD-R drive.
Connect the designated DVD-RAM, DVD-R and CD-R drive and the COPY1 port on the rear panel or the COPY2 port inside the connectors cover on the front panel of this unit using an USB cable (not included).

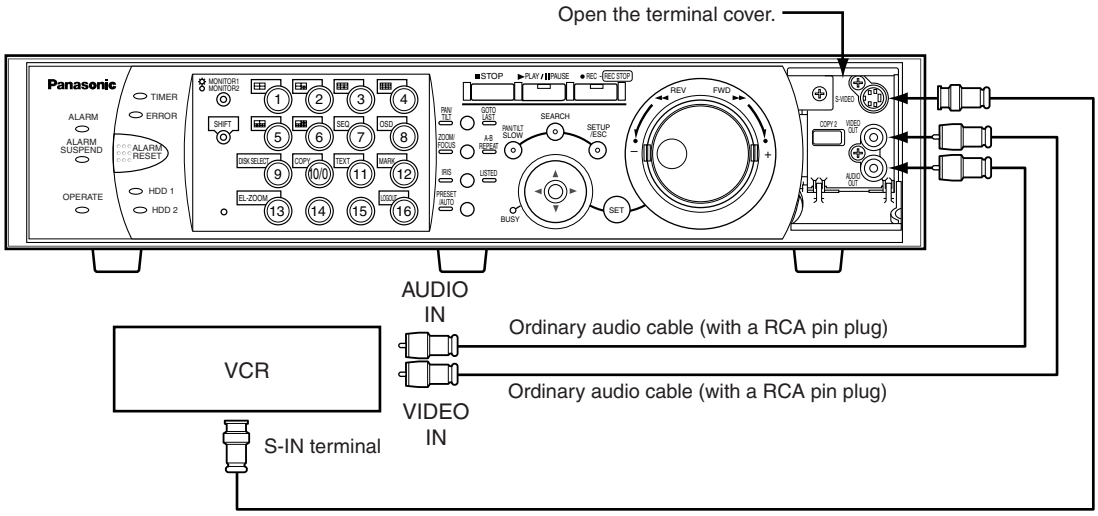
Important:

- Use an appropriate USB cable compatible with the USB2.0 standard.
- Fix the cables with the cable clamp (provided with this unit) to prevent disconnection or unstable connections that may cause recording failures or an unstable system.



■ Connections with the VCR

When it is necessary to copy the recorded images to a video tape using a VCR, connect the VCR to the S-VIDEO connector (or the VIDEO OUT connector) and the AUDIO OUT connector inside the connectors cover on the front panel of this unit as below.



Note: The same video signal supplied to the MONITOR1 connector and to the MONITOR2 (VGA) connector will be supplied to the S-VIDEO connector and the VIDEO OUT connector inside the connectors cover.
The same audio signal supplied to the AUDIO OUT connector on the rear panel of this unit will be supplied to the AUDIO OUT connector inside the connectors cover on the front panel.

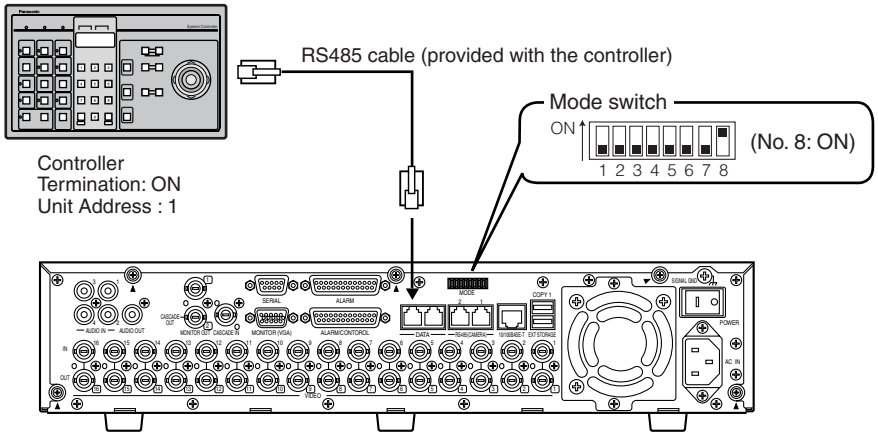
■ Connections with PS·Data systems

This is an example of connection when the unit is used together with the PS·Data devices.
If a connected system controller is PS·Data compatible, it is possible to operate this unit or connected devices using the system controller.
Use the RS485 cable provided with the system controller.

Important:

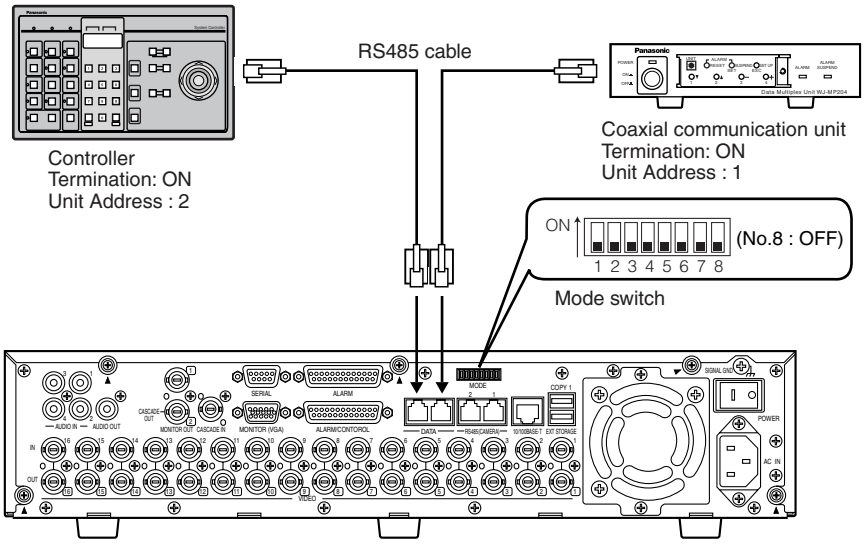
- Terminate both devices on both ends of the connection. Refer to the respective operating instructions for the descriptions of how to terminate. Termination of this unit can be set with the mode switch on the rear panel. (See below.)
- When connecting a PS·Data compatible device, it is necessary to set each item of "PS·Data Setup" of "Comm" on the SETUP MENU according to the system configuration.
- The PS·Data is our exclusive protocol. Contact dealer about devices that can be connected.

● When this unit is installed between the controller and the system device (when this unit is used as a receiver)

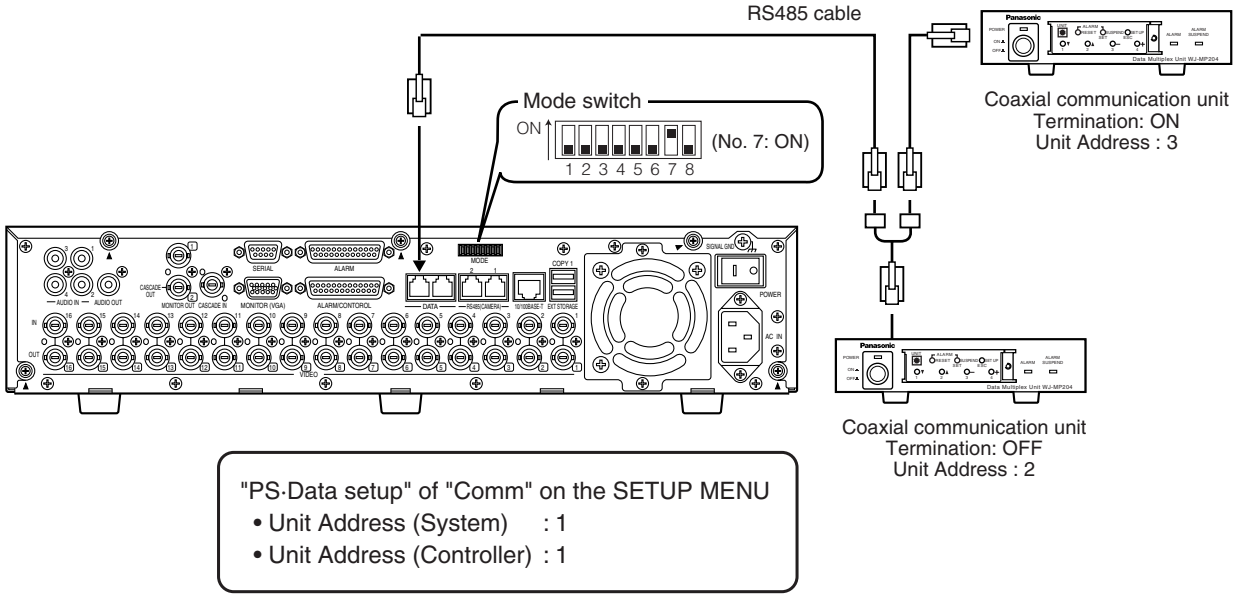


"PS·Data setup" of "Comm" on the SETUP MENU
- Unit Address (System) : 1
- Unit Address (Controller) : 2

● When this unit is connected with the system device (when this unit is used as a controller)



"PS·Data setup" of "Comm" on the SETUP MENU
- Unit Address (System) : 1
- Unit Address (Controller) : 2



"PS·Data setup" of "Comm" on the SETUP MENU
- Unit Address (System) : 1
- Unit Address (Controller) : 1

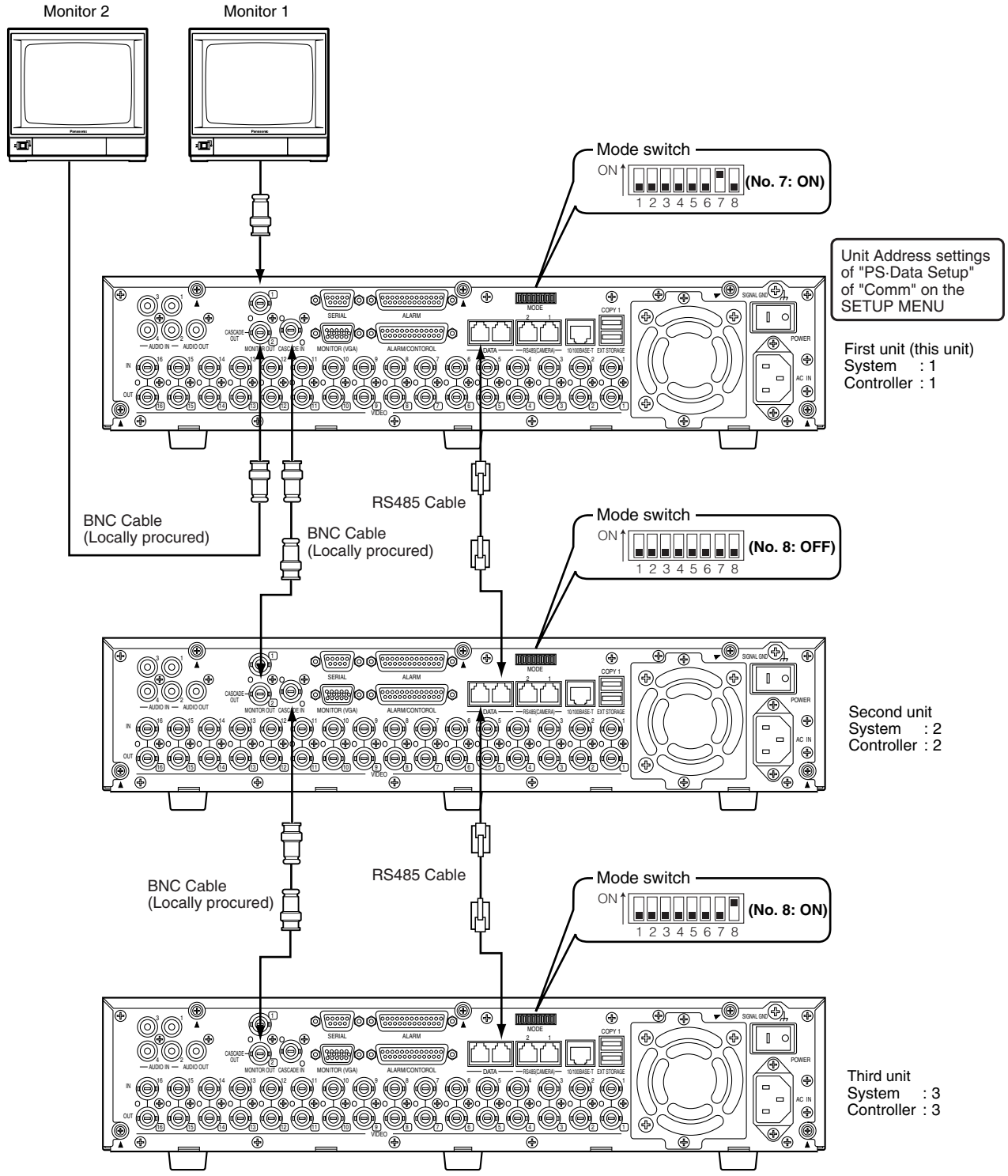
■ Cascade connection of multiple units

Up to of four units can be connected.
For the cascade connection, connect the CASCADE IN connector and the CASCADE OUT connector on the rear panel of each unit as below.

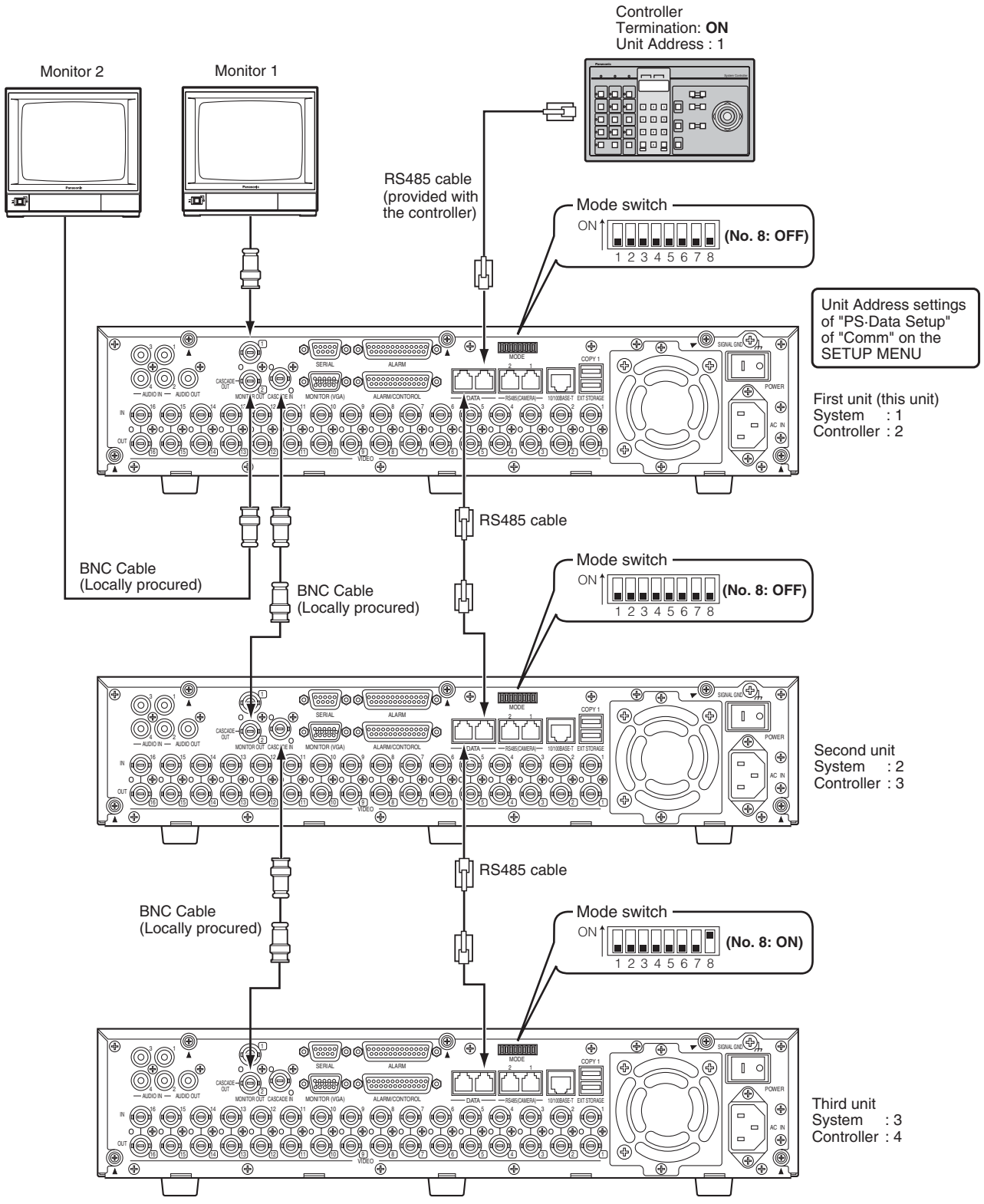
Important:

- When connecting the unit in the cascade connection, set "Cascade" of "PS·Data Setup" in "Comm" on the SETUP MENU to "ON". (Page 115)
- It is impossible to use this connector when connecting the unit in the cascade connection.

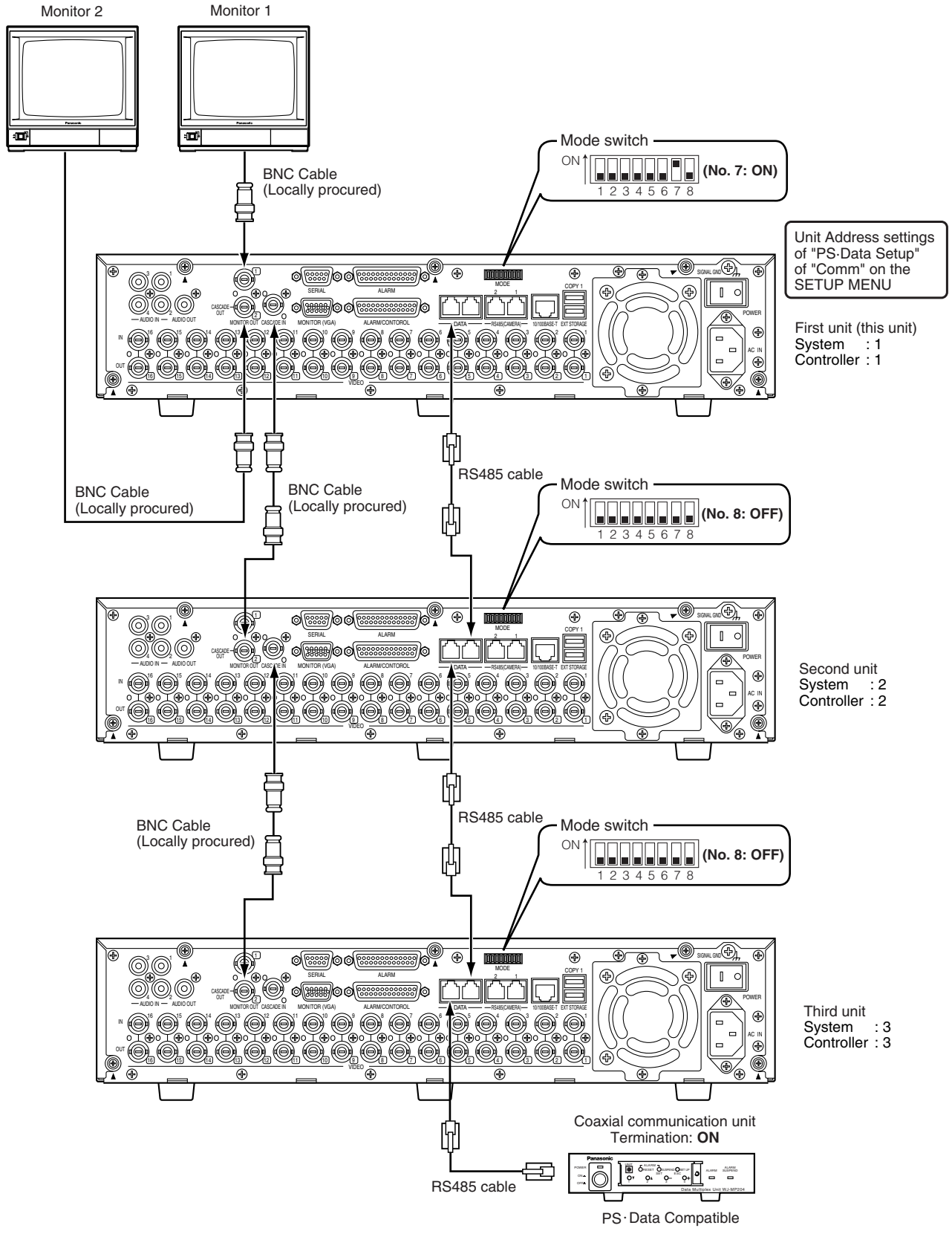
● When no PS·Data compatible device is connected to the system



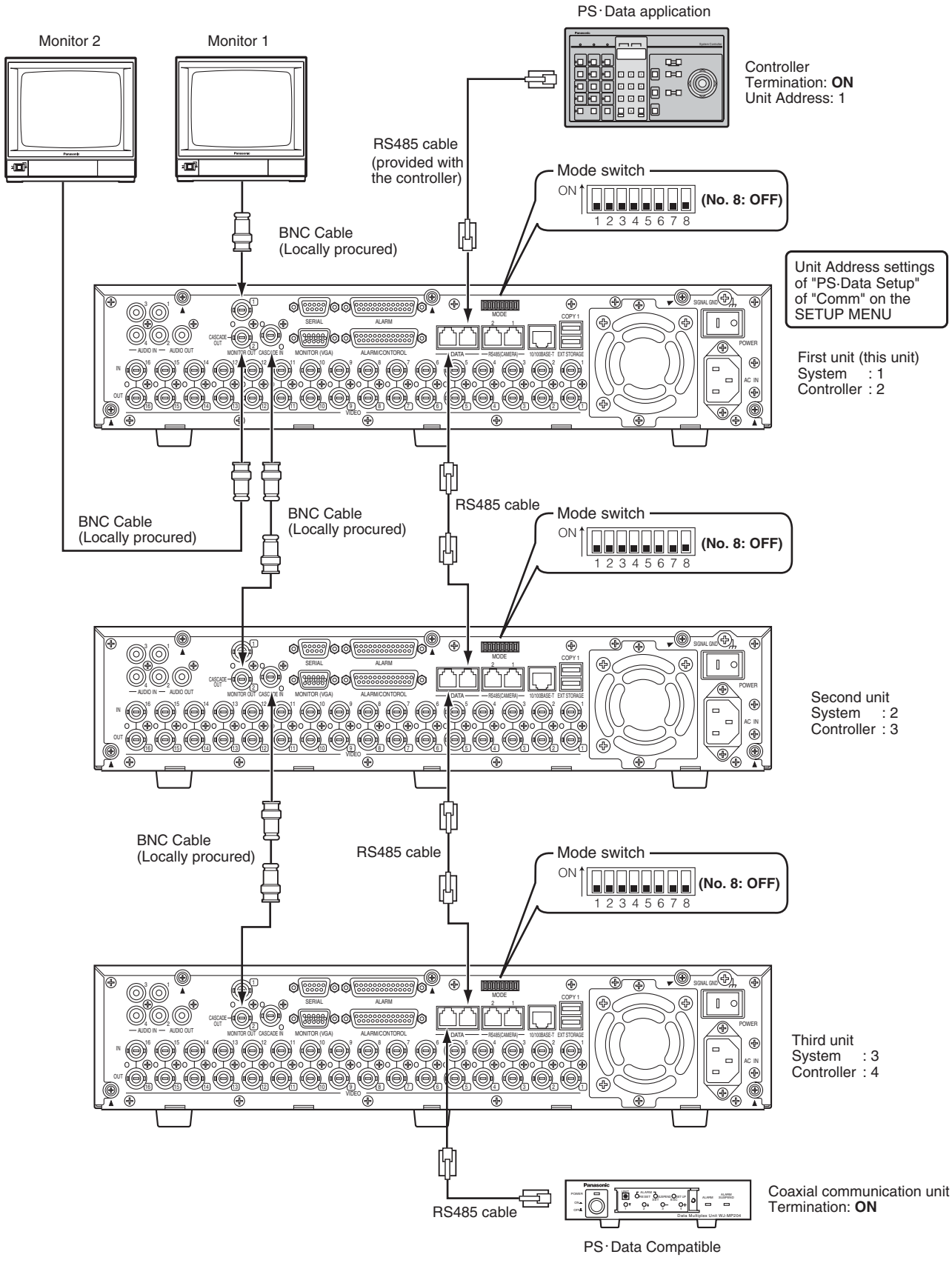
● When the PS·Data compatible device is connected to the first unit (when this unit is used as a receiver)



● When the PS·Data compatible device is connected to the third unit (when this unit is used as a receiver)



● When the PS·Data compatible devices are connected to the first and third units (when this unit is used as a receiver)



■ Connection with the RS485 camera

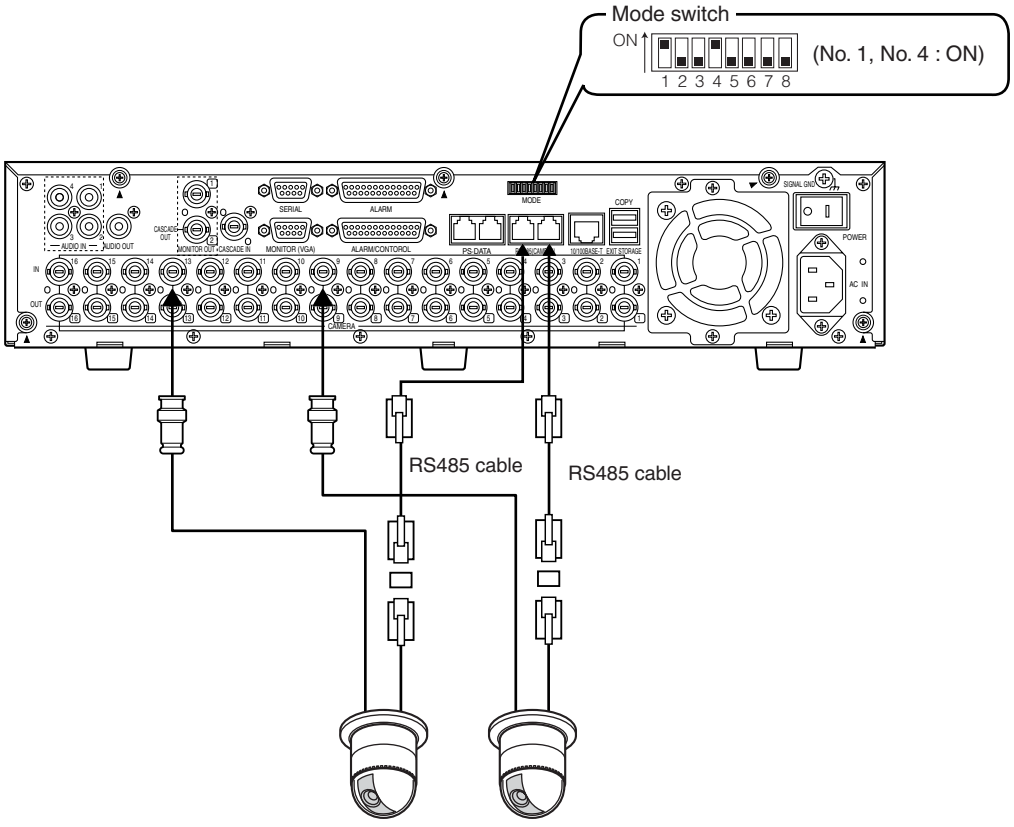
This is an example of connection when the unit is used together with the RS485 devices.
Up to eight cameras can be connected using a single RS485 (CAMERA) port.

Important:

- Terminate both devices on both ends of the connection. Refer to the respective operating instructions for the descriptions of how to terminate. Termination of this unit can be set with the mode switch on the rear panel.
- When connecting an RS485 camera, it is necessary to set each item of "RS485 Setup" of "Comm" on the SETUP MENU according to the RS485 settings of the camera. (Refer to page 116.)
- The total length of the RS485 cable from this unit is 1 200 meters at the maximum.

● 1:1 connection

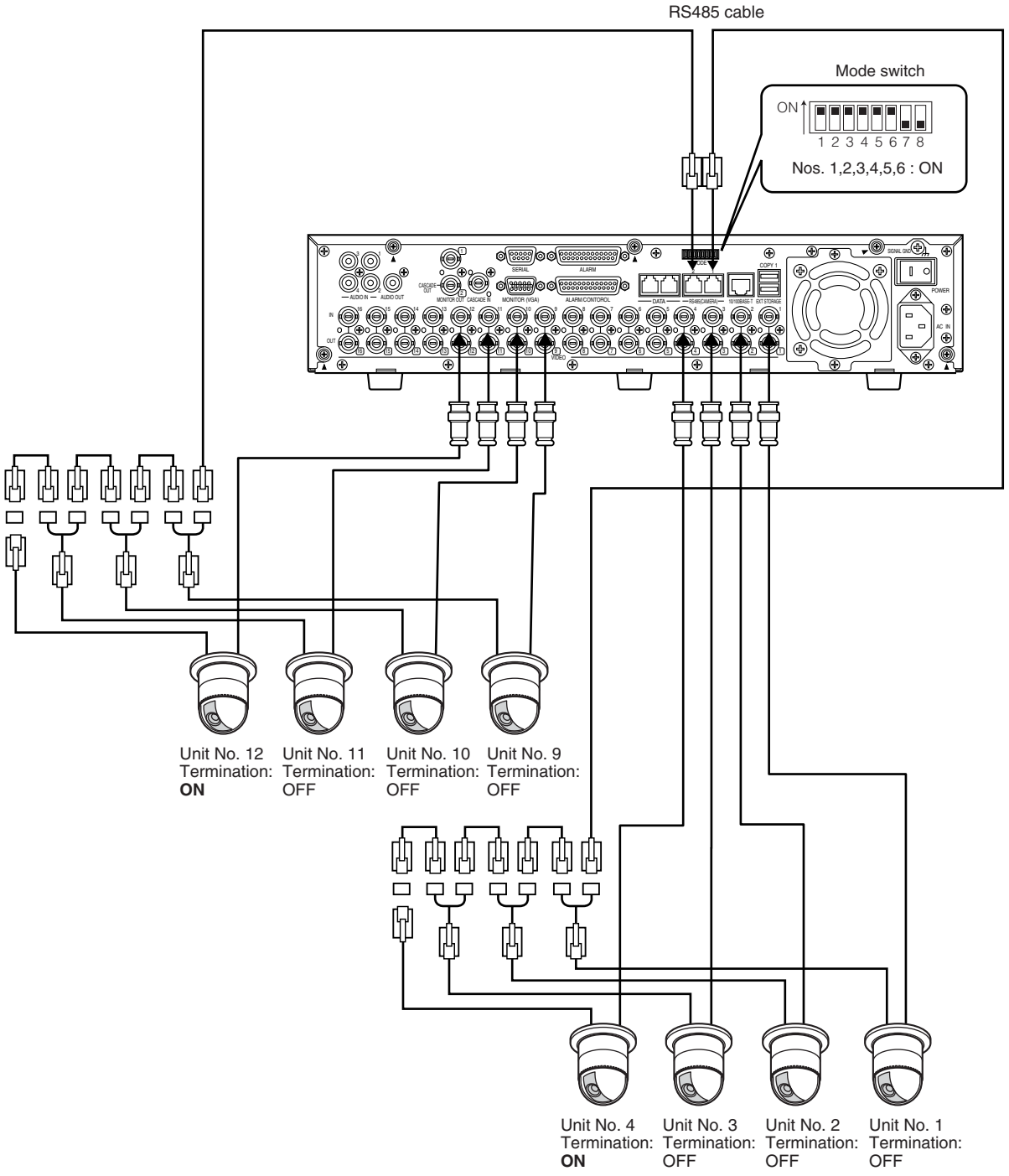
Connect a camera to the RS485 (CAMERA) port.
Example: When the RS485 cameras are connected to the CAMERA IN connectors 9 and 13:



Connect the RS485 camera to	Switches required to be set	4-wire communication	2-wire communication
RS485 (1)	No.2 No.3	OFF OFF	ON ON
RS485 (2)	No.5 No.6	OFF OFF	ON ON

● Daisy connection

Multiple cameras can be connected to the RS485 (CAMERA) port.
Example: When cameras 1 - 4 are connected to one of the RS485 (CAMERA) port and cameras 9 - 12 are connected to the other RS485 (CAMERA) port.



Connect the RS485 camera to	Switches required to be set	4-wire communication	2-wire communication
RS485 (1)	No.2 No.3	OFF OFF	ON ON
RS485 (2)	No.5 No.6	OFF OFF	ON ON

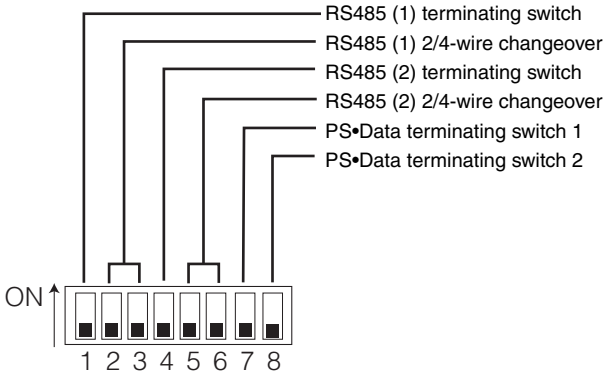
■ Mode Switch

RS485 interface is used to communicate between this unit and the PS·Data compatible system device. In this case, it is necessary to terminate both devices on both ends of the RS485 connection.
The settings of the mode switch will be different depending on whether this unit is used as a receiver or a controller.
When an RS 485 camera is connected to this unit, it is necessary to terminate both devices on both ends of the connection.

- **When connecting this unit with the system controller and this is installed at the end of the PS·Data connection**
  PS·Data termination switch 1: ON

- **When connecting a system device and this unit is installed at the end of the PS·Data connection**
  PS·Data terminating switch 2: ON

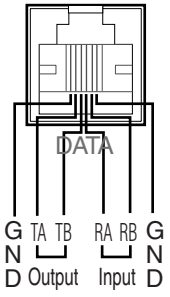
- **When connecting RS485 cameras**
  Set the termination switch of the connected RS485 (CAMERA) port to ON.
  Connected to the RS485 (CAMERA) port 1: Set the RS485 (1) termination switch to ON.
  Connected to the RS485 (CAMERA) port 2: Set the RS485 (2) termination switch to ON.


RS485 (1) terminating switch
RS485 (1) 2/4-wire changeover
RS485 (2) terminating switch
RS485 (2) 2/4-wire changeover
PS•Data terminating switch 1
PS•Data terminating switch 2
ON
1 2 3 4 5 6 7 8

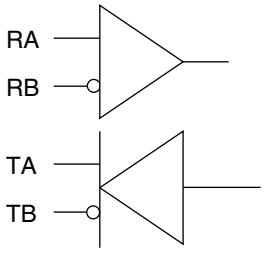
- **For 2-wire communication**
  Connected to the RS485 (CAMERA) port 1: Set the switch No.2 and No.3 to ON.
  Connected to the RS485 (CAMERA) port 2: Set the switch No.5 and No.6 to ON.

- **For 4-wire communication**
  Connected to the RS485 (CAMERA) port 1: Set the switch No.2 and No.3 to OFF.
  Connected to the RS485 (CAMERA) port 2: Set the switch No.5 and No.6 to OFF.

■ RS485 Port

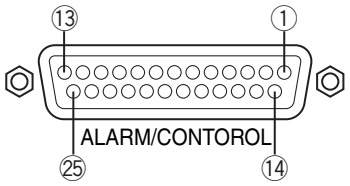


Internal block diagram



■ How to Use the Terminals of the ALARM/CONTROL Connector

These terminals are used for emergency recording, auto time adjustment (Auto Adjust Time), taking measures against power outages (Shutdown Time), and when installing a buzzer, a lamp, or similar alarm device. They are also used to synchronize with the sequential display changeover.
The terminal pin array and connections are shown below. The connector used should be compatible with the pin configuration.



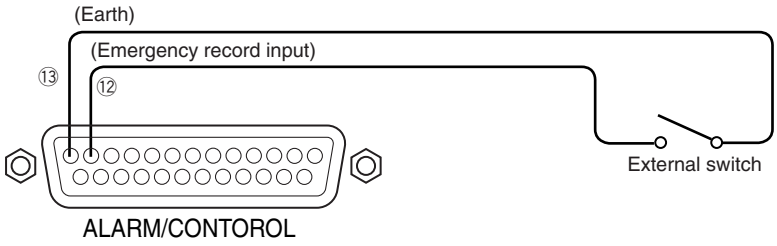
Pin array

The pin array is different from other disk recorders. Make sure that the connection is correct referring to the following.

Pin No.	Pin No.	Operation	Remarks
①	Ch 8 alarm output	Alarm signal output at an event occurrence	Open collector output 24 V max., 100 mA
②	Ch 9 alarm output		
③	Ch 10 alarm output		
④	Ch 11 alarm output		
⑤	Ch 12 alarm output		
⑥	Ch 13 alarm output		
⑦	Ch 14 alarm output		
⑧	Ch 15 alarm output		
⑨	Ch 16 alarm output		
⑩	NC		
⑪	Alarm display reset input	Canceling the alarm display	Non-voltage make contact input –100 mA, 5 V pull-up
⑫	Emergency recording input	Starting emergency recording disk space a signal input	
⑬, ⑭	Earth (Grounding)		
⑮	Alarm output for available disk space of device connected to copy port	Generation of signal output for disk space alarming of DVD-RAM, DVD-R, CD-R	Open collector output 24 V max., 100 mA
⑯	HDD error output	Signal output upon detection of HDD error	
⑰	Camera error output	Signal output upon detection of camera error	
⑱	Error output	Signal output upon detection of unit error	
⑲	End of outage processing	Signal output upon completion of outage processing	High (+12 V)
⑳	Time adjustment I/O	Time of this unit is adjusted to the preset time according to the signal input. This signal output is then generated for the setting time of this unit. Time of all other units is adjusted to the setting time of this unit.	30 kΩ 5 V pull-up, –100 mA/make contact
㉑	Sequence changeover I/O	Sequence changeover is effected according to the signal input. Signal output is generated at the time of sequence changeover.	
㉒	Alarm suspension input	The state of alarm suspension is assumed according to the signal input.	
㉓	Outage detection I/O	Start of outage processing according to the signal input.	Non-voltage make contact input –100 mA/5 V pull-up
㉔	External recording mode changeover	Changeover to the external recording mode	
㉕	+5 V output	+5 V output	200 mA max.

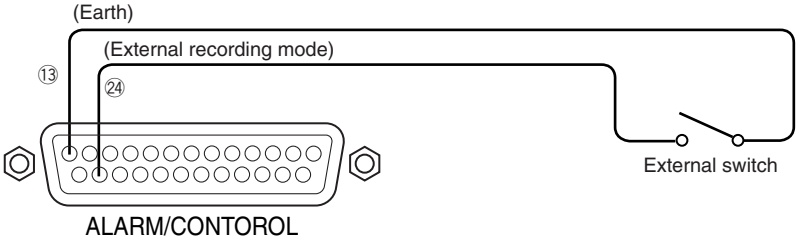
● Connection for emergency recording

When the external switch is turned ON, emergency recording will be started.
Resolution, recording time, recording rate and quality for emergency recording can differ according to the settings of "Emergency REC" of "Recording" on the SETUP MENU. (Refer to page 98.)



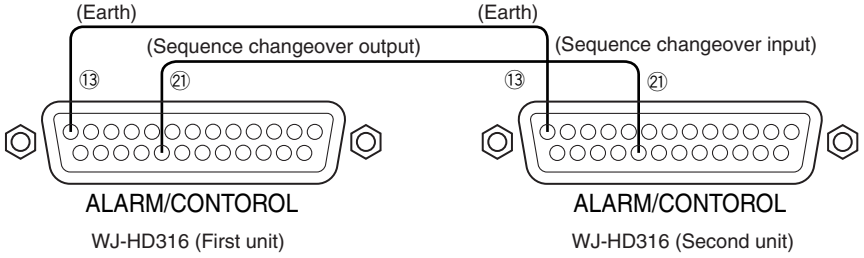
● Connection for external recording changeover

When the external switch is turned ON, the recording program changeover is effected for recording.
The recording program can be set for "EXT." with the "Time Table" of "Schedule" on the SETUP MENU. (Refer to page 106.)



● Connection to synchronize the sequential display changeover (when multiple units are used)

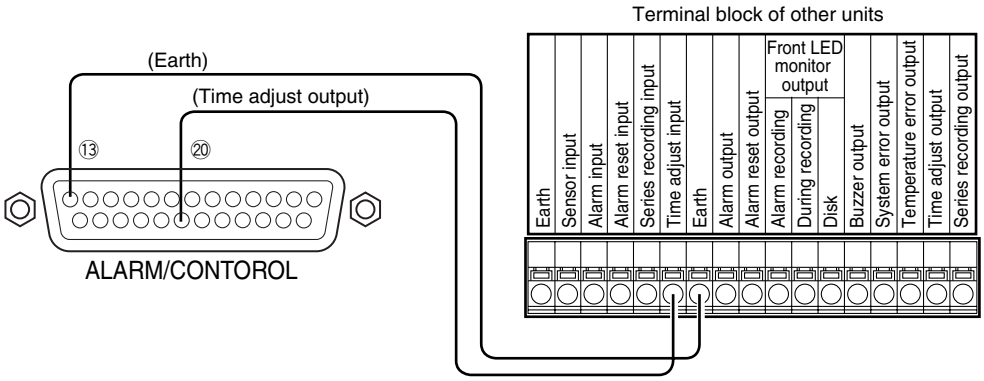
Sequential display changeover is effected with the timing of supplied signals to the sequence changeover input terminal. When multiple units are used, the sequence timing can be synchronized.
Setting for the sequence timing can be set with "Sequence Timing" of "Switcher" on the SETUP MENU. (Refer to page 110.)
For the synchronization of the sequence timing between multiple units, there is a difference in the sequence timing setting as shown below between the synchronized side (Master) and the synchronizing side (Slave).
Synchronized side (Master): Set at "INT" (functioning as an output terminal)
Synchronizing side (Slave): Set at "EXT" (functioning as an input terminal)



● Connection for the Auto Adjust Time function

• When "Auto Adjust Time" of "System" on the SETUP MENU is set to "MASTER"

"Time Adjust Output" becomes available and the clock of this unit can be applied to other units.

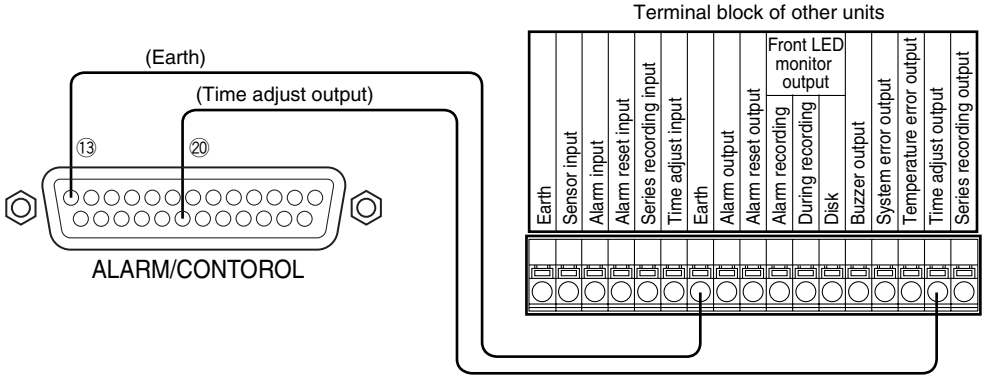


• When "Auto Adjust Time" of "System"on the SETUP MENU is set to "SLAVE"

"Time Adjust Input" becomes available. When a signal output from other equipment is supplied to the time adjust I/O terminals between 00 minutes 00 seconds and 14 minutes 59 seconds every hour or between 45 minutes 00 seconds and 59 minutes 59 seconds every hour, the clock will be set to "00 minutes 00 seconds" of the closest hour.

Example:

Signal is supplied at 2:50:00 (hour:minute:second)pm → Set at 3:00:00 pmM
Signal input supplied at 3:14:45 pm → Set at 3:00:00 pm
Signal is supplied at 3:20:00 pm → Time will not be adjusted.

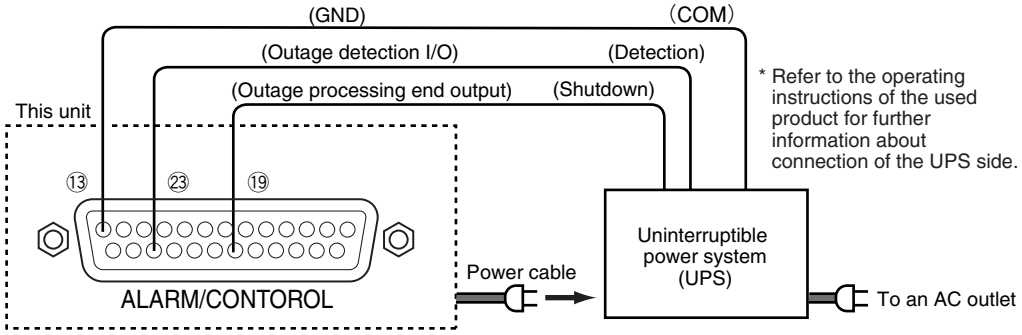


Important:

Recording will not be performed for around 4 seconds when changing the present time (accurate within ±5 seconds) using the time adjustment input (pin no.20).

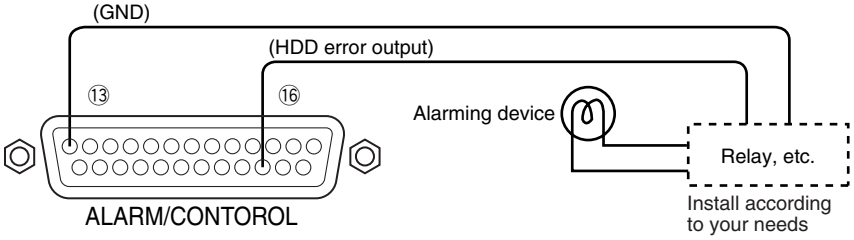
● Connection with the Uninterruptible Power System (UPS)

This is an example of connection with the uninterruptible power system (UPS) to be installed to protect from a power outage.
When a signal is supplied to the outage detection I/O terminals from the uninterruptible power system (UPS), internal processing (stops recording safely) will be started to shut off the power supply for this unit.
After completing the internal processing, a signal will be supplied from the outage processing end output terminal to the uninterruptible power system (UPS). Then, the power supply to this unit can be suspended.



● Connection of the control output

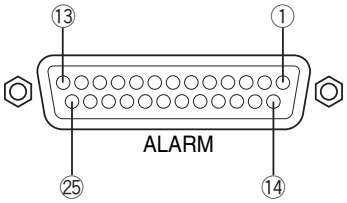
- When an alarm device such as a buzzer or a lamp is connected, the signal output from Pin Nos. 15 - 18 can be used to notify the status by sounding a buzzer or lighting a lamp.
- The following example is of a connection with the HDD error output (pin no. 16).



■ How to Use the Terminals of the ALARM Connector

These terminals are used to connect the alarm devices, such as sensors, door switches, etc.
The pin configurations of these terminals are as shown below. The connector used should be compatible with the pin configuration.

Pin Configuration

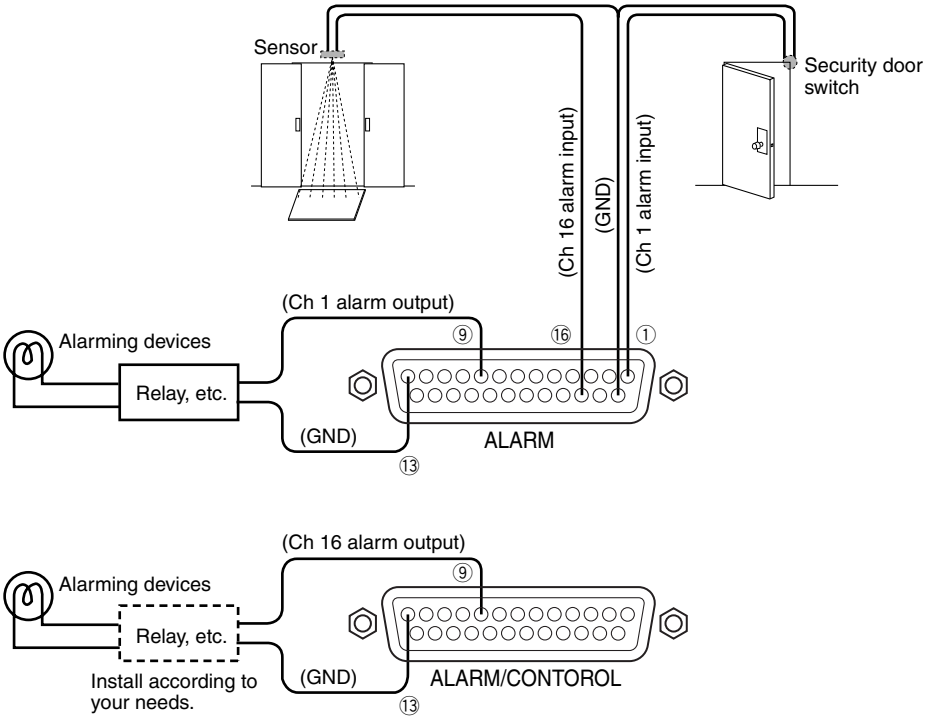


The pin array is different from other disk recorders. Make sure that the connection is correct referring to the following.

Pin No.	Pin No.	Operation	Remarks
①	Ch 1 alarm input	Event action will be performed according to the settings.	Non-voltage make contact/–100 mA, 5 V pull-up
②	Ch 2 alarm input		
③	Ch 3 alarm input		
④	Ch 4 alarm input		
⑤	Ch 5 alarm input		
⑥	Ch 6 alarm input		
⑦	Ch 7 alarm input		
⑧	Ch 8 alarm input		
⑨	Ch 1 alarm output	Alarm signal will be supplied at an event occurrence	Open collector output/24 V, 100 mA
⑩	Ch 2 alarm output		
⑪	Ch 3 alarm output		
⑫	Ch 4 alarm output		
⑬, ⑭	Earth (Grounding)		
⑮	Ch 9 alarm input	Event action will be performed according to the setting.	Non-voltage make contact input/ –100 mA, 5 V pull-up
⑯	Ch 10 alarm input		
⑰	Ch 11 alarm input		
⑱	Ch 12 alarm input		
⑲	Ch 13 alarm input		
⑳	Ch 14 alarm input		
㉑	Ch 15 alarm input		
㉒	Ch 16 alarm input		
㉓	Ch 5 alarm output	Alarm signal will be supplied at an event occurrence	Open collector output/24 V max., 100 mA
㉔	Ch 6 alarm output		
㉕	Ch 7 alarm output		

● Alarm connection

When a signal is supplied to the alarm input terminals of CH 1-16, recording and displaying of camera images will be performed according to the settings.
When an alarm device such as a buzzer, a lamp, etc., is installed outside, connect them to the alarm output terminals (pin nos. 9 - 12, pin nos. 23 - 25) or to the alarm output terminals (pin nos. 1 - 9) of the ALARM/CONTROL terminal.



Time and polarities of the ALARM/CONTROL terminal and the ALARM terminal

Terminal	Active time	Note
Alarm input	100 ms or more	N.O.: L active N.C.: H active
Alarm output	The set time on the SETUP MENU	L active
Alarm reset input	100 ms or more	L active
Emergency recording input	100 ms or more	L active
Alarm output for available disk space of device connected to the copy port	While the size of the available disk space is less than the set size	L active
HDD error output	Until the HDD error is cleared	L active
Camera error output	Until the camera error is cleared	L active
Error output	Until the error is cleared	L active
Outage processing end output	100 ms	H active
Time adjust I/O	Input: 100 ms or more Output: 1 s	L active
Sequence changeover output	100 ms or more	L active
Outage detection output	100 ms or more	L active
External recording mode changeover	100 ms or more	L active, judged by level
Alarm suspend output	100 ms or more	L active, judged by level

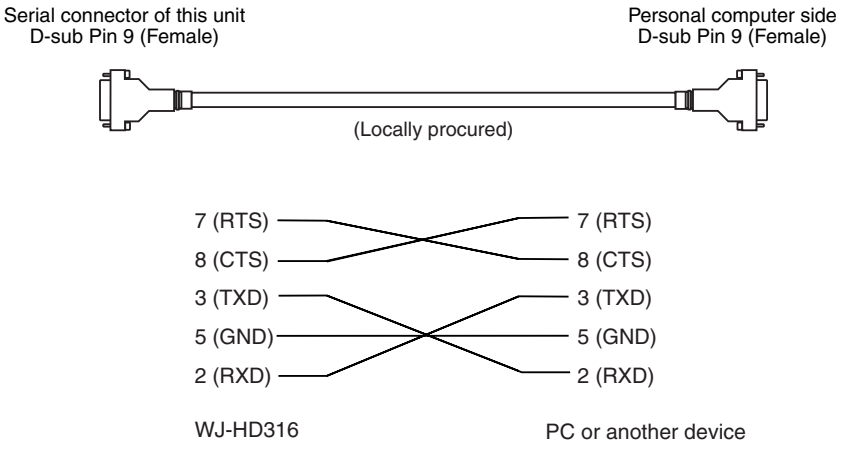
■ How to Use the SERIAL Connector

This connector is compliant with the RS232C Standard, and is used to communicate with a connected PC.
A connection example and the pin configuration of the SERIAL connector are as shown below.

Important:

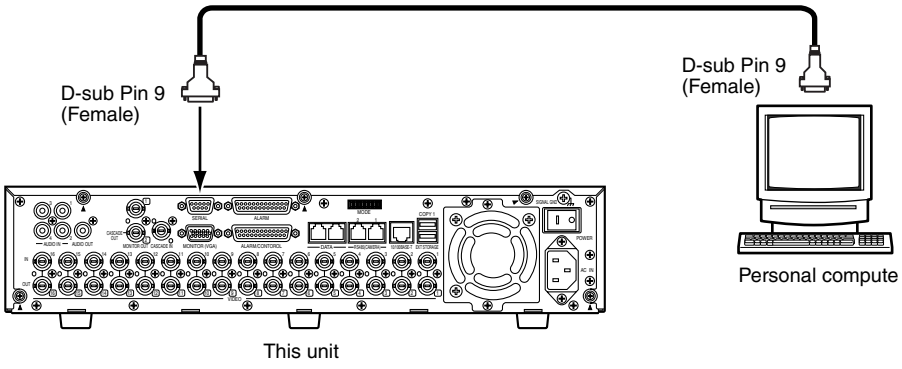
- When using the SERIAL connector, it is necessary to perform the settings with "RS232C Setup" of "Comm" on the SETUP MENU for the communication functions. (Page 117)

● Pin Configuration



Connection example of cross cable

● Connection example



SETUP

To operate this unit, it is necessary to set each item of the SETUP MENU in advance.
Perform the settings for each item of the SETUP MENU by displaying the SETUP MENU on monitor 2.
Settings items are as below.

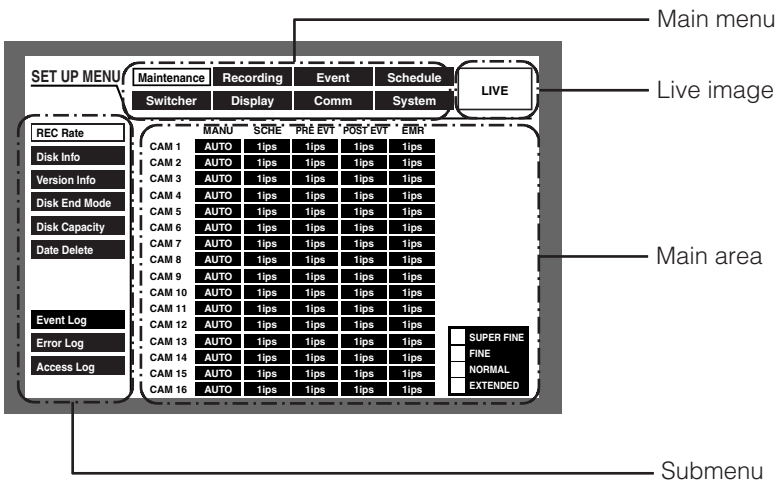
■ Item list of the SETUP MENU

Settings menu		Description	Page
Maintenance			
	REC Rate	Display the recording rate for each recording mode and image quality for each camera channel in list form.	93
	Disk Info	Display hard disk information such as the available disk space on the built-in hard disk and the connected optional extension unit.	93
	Version Info	Display version information of the software and the hardware and the MAC address.	93
	Disk End Mode	Set actions to be taken when the available space of the built-in hard disk or of the connected external recording device reaches a specified level.	94
	Disk Capacity	Set to display a warning when the available space of the built-in hard disk or of the connected external recording device reaches a specified level.	94
	Data Delete	Delete data stored on the hard disk, or format (initialize) the DVD-RAM disk connected to the COPY port.	94
	Event Log	Display the event log. Refer to page 45 for further information.	95
	Error Log	Display the error log such as a HDD error log.	95
	Access Log	Display the time, user name and IP addresses when logging in/out to/from this unit.	96
Recording			
	REC Setup	Perform the basic settings for recording.	97
	Emergency REC	Perform the settings for emergency recording such as recording time and recording rate.	98
Event			
	Event Setup	Perform the settings for the alarm output duration and the buzzer sound when an event (motion detection, video loss, command/terminal alarm) occurs.	99
	VMD Setup	Perform the settings for the motion detection area, sensitivity and the detection mode for each camera channel.	99
	Alarm Setup	Perform the settings for the alarm display duration and alarm suspension duration.	102
	Terminal Setup	Specify the alarm terminal polarity.	103
Schedule			
	Time Table	Create timetables for each day of the week, and assign the recording action programs and event action programs to the created timetables.	106
	REC Program	Up to 4 recording programs can be created. Perform the settings for the recording actions for each program such as image quality and recording rate for each camera channel.	104
	Event Program	Up to 4 event programs can be created. Perform the settings for each program such as the event action and the auto copy function for each event type.	106
	Special Days	Assign timetables independently for special days aside from other days.	108

Settings menu		Description	Page
Switcher			
	Monitor1	Perform the settings for the image switching on monitor 1 such as the setting of the sequential display or the screen to be displayed at login on monitor 1.	109
	Monitor 2	Perform the settings for the image switching on monitor 2 such as the setting of the sequential display or the screen to be displayed at login on monitor 2.	111
Display			
	OSD Setup	Perform the display settings such as the settings for the display position of the camera title and the time.	112
	Monitor1	Perform the display settings for monitor 1 such as the camera title display on/off, the alarm display on/off and the time display on/off.	113
	Monitor2	Perform the display settings for monitor 2 such as the display mode (task bar style), the camera title display position, and the camera title display on/off.	114
Comm			
	Camera Control	Set the communication type to control cameras for each camera channel.	115
	PS·Data Setup	Perform the settings for the PS·Data. It is necessary to perform these settings when connecting an external device such as a controller to the DATA port on the rear panel of this unit.	115
	RS485 Setup	Perform the settings for the RS485. It is necessary to perform these settings when connecting an RS 485 compatible camera to the RS485 (CAMERA) port on the rear panel of this unit.	116
	RS232C Setup	Perform the settings for the SERIAL (RS232C). It is necessary to perform these settings when connecting a PC to the SERIAL connector on the rear panel of this unit.	117
	NW Setup 1	Perform the basic network settings. It is necessary to perform these settings when operating this unit via a network such as a LAN. The settings for the user authentication and the host authentication can also be set with these settings.	118
	NW Setup 2	Perform the network connection settings such as IP addresses and the gateway address. It is necessary to perform these settings when operating this unit via a network such as a LAN.	118
	NTP Setup	Perform the NTP server settings such as the NTP server address and the time zone setting. It is necessary to synchronize the clock with the NTP server.	119
System			
	Basic Setup	Perform the settings for the basic operation of this unit.	120
	Time & Date	Perform the settings for the time adjustment and display of the time and date.	121
	User Regist.	Perform the settings for the user registration and the user authentication such as user name, password and operational level.	122
	User Edit	Edit the registered user information.	123
	User Delete	Delete registered users.	123
	Host Regist.	Register the hosts (PCs access this unit via a network) with their information such as IP address and operational level for the host authentication.	123
	Host Edit	Edit the registered hosts.	124
	Host Delete	Delete the registered hosts.	124
	User Level	Perform the settings to specify operable functions for each level.	124
	Save/Load	The set contents can be saved or loaded.	125

Note: Refer to page 126 for further information about the settings using the setup menu of camera.

■ About the SETUP MENU



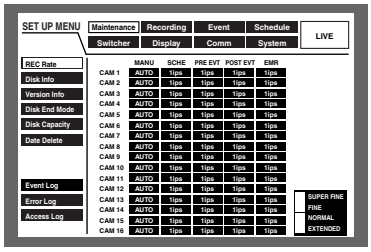
Main menu: These menus are always displayed on the SETUP MENU.
Live image: Live images from the camera channel that was selected just before the SETUP MENU was displayed.
Main area: The setting items of the selected submenu will be displayed in this area.
Submenu: The submenu of the selected main menu will be displayed on the left side of the SETUP MENU. The submenus differ depending on the selected main menu.

■ Basic Operation with the SETUP MENU

1 Press the SETUP/ESC button for 2 seconds or more when displaying live images.

[Screenshot 1]

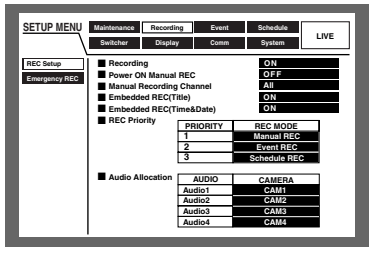
The top page of the SETUP MENU will be displayed.



2 Select a main menu using the arrows button and press the SET button.

[Screenshot 2]

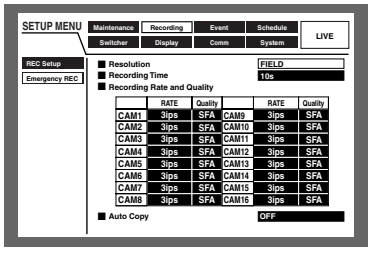
The submenu of the selected main menu will be displayed.



3 Select the submenu using the arrows button (▼ ▲) and the press the SET button.
When selecting the submenu by the cursor is enabled, press the SETUP/ESC button. The main menu can be selected.

[Screenshot 3]

The setting items will be displayed in the main area and the cursor will move to a setting item.



4 Perform the settings for each item.

Item selection: Move the cursor using the arrows button (▼ ▲ ◄ ►).

Change the setting: Rotate the jog dial.

Pop-up display of the setting item: Press the SET button when the setting item has the "SETUP" button next to the item name.

Turning pages of the settings menu: When "PREV/NEXT PAGE" is displayed on the bottom of the settings menu, move the cursor to the "PREV/NEXT PAGE" using the arrows button, and then use the arrows button (◄ ►) to turn the pages.

Selecting a submenu again: Press the SET button. The cursor will be able to select a submenu again.

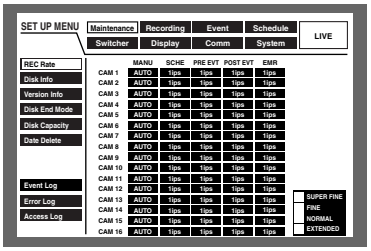
5 After completing the settings, press the SETUP/ESC button for 2 seconds or more to apply the settings. The SETUP MENU will be closed.
→ Live images will be displayed again.

Important:

If the settings are changed, all login users will be forcefully logged out.

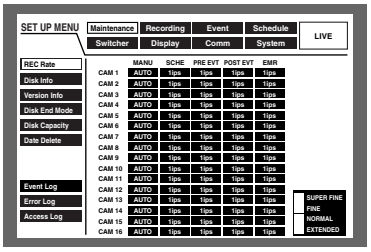
■ [Maintenance] Functions for Maintaining

Perform the settings for the hard disk drives.
It is possible to check the histories (log) of event occurrence, error occurrence and access.



① [REC Rate] Check the recording rate and the image quality for each camera channel.

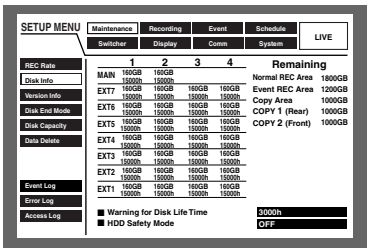
Recording rate for each recording mode for each camera (as shown below) will be displayed in list form.



MANU: Manual recording
SCHE: Schedule recording
PRE EVT: Pre-event recording
POST EVT: Post-event recording
EMR: Emergency recording

② [Disk Info] Check the available hard disk space

The available hard disk space of the following will be displayed: The built-in hard disk (normal recording area, event recording area and copy area), optional extension unit (EXT1 - 7), DVD-RAM, CD-R and DVD-R disk drive connected to the copy port (COPY1 or COPY2).
Refer to page 25 for more details on the built-in hard disk.
It is also possible to perform the settings for the hour-meter (the active time of the HDD) warning and for the HDD safety mode with this menu.



Notes:

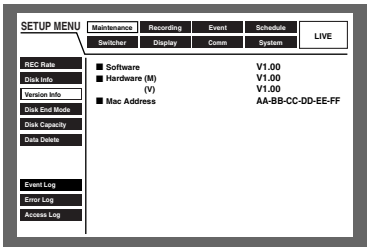
- The displayed available disk space on this menu will not include the space required for data management. Therefore, the understated available disk space will be displayed.
- When CONTINUE is selected for "Disk End Mode" of "Maintenance", available disk space will be displayed as "--".
- "**" will be displayed to refer to a disk that is not connected or not existed area on the disk.

- **Hour meter warning setting**
  Select the duration as the maximum active time of the hard disk from the followings. Warning will be displayed when the set time have passed. Hard disk drives will need to be replaced after around 20 000 - 30 000 hours of operation in case they are used at temperature of 25 ˚C (77 ˚F). (Refer to page 6.)
  10 000 h/20 000 h/30 000 h

- **HDD safety mode**
  When maintaining (HDD replacement, installation, etc.) without turning the power of the unit off, select ON for "HDD Safety Mode". The unit will be restarted in the HDD Safety Mode. Refer to page 67 for further information.
  (The default setting is ON.)

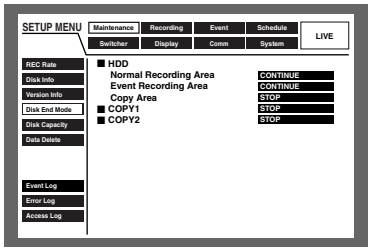
③ [Version Info] Check the version information

Version information of the software and the hardware, and the MAC address will be displayed.



④ [Disk End Mode] Set actions to be taken when the available hard disk space has run out

Select an action from the followings to be taken when the available space of the built-in hard disk (normal recording area, event recording area, copy area) or the external recording device (DVD-RAM, CD-R or DVD-R disk drive) connected to the copy port (COPY1, COPY2) is running out.



CONTINUE: When the available disk space has run out, old data will be overwritten by new data. In this case, the oldest data is the first to be overwritten.

STOP: When the available disk space has run out, recording and copying will be canceled.

Important:

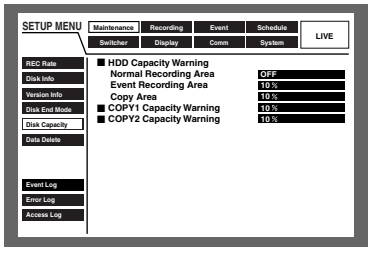
When changing the setting of CONTINUE to STOP during overwriting, the oldest 1 hour's worth of recorded images will be deleted. It is impossible to recover the deleted images even though set to CONTINUE again.

⑤ [Disk Capacity] Set actions to be taken when the available disk space is running out

Select an action from the following to be taken when the available space of the built-in hard disk (normal recording area, event recording area, copy area) or the external recording device (DVD-RAM, CD-R or DVD-R disk drive) connected to the copy port (COPY1, COPY2) reaches a specified level.

The setting range is between 1 % and 10 % (in 1 % intervals).

The warning will not be issued when OFF is selected.



Important:

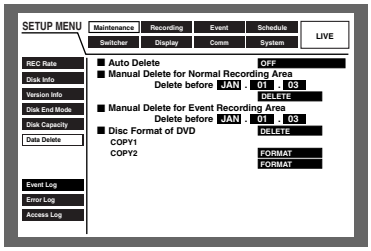
When "CONTINUE" is selected for "Disk End Mode", a warning will not be issued.

⑥ [Data Delete] Delete image data on the hard disk

Delete image data on the built-in hard disk (normal recording area/event recording area).

Auto deletion and manual deletion are available to delete image data.

It is also possible to initialize (format) a DVD-RAM disk with this menu.



● Auto Delete

It is possible to delete recorded images automatically when the set days have passed from the day the image was recorded. Refer to a system administrator for further information.

Available days for the auto delete function are as follows.

The auto delete function will not work when OFF is selected.

OFF/1DAY/2DAYS/3DAYS/4DAYS/5DAYS/6DAYS/7DAYS/8DAYS/9DAYS/10DAYS/14DAYS/30DAYS/45DAYS/60DAYS/90DAYS/120DAYS/150DAYS/180DAYS

● Manual Delete for Normal Recording Area

By setting the time and date, images in the normal recording area of the hard disk that were recorded up until a day before the set time and date will be deleted.

Enter a 2-digit number for the year when entering the time and date.

● Manual Delete for Event Recording Area

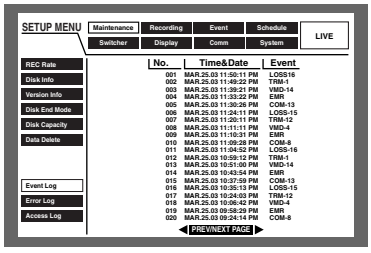
By setting the time and date, images in the event recording area of the hard disk that were recorded up until a day before the set time and date will be deleted.

● Disc Format of DVD

Initialize (format) a DVD-RAM disk in the DVD-RAM drive connected to the copy port.

⑦ [Event Log] Check the event log

Event log (time and date at an event occurrence, details) will be displayed in list form.
Refer to page 45 for further information about each event.

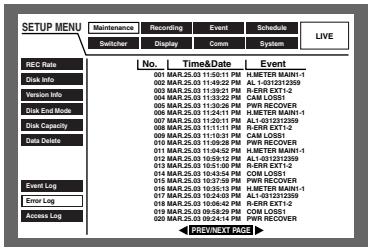


COM: Command alarm
EMR: Emergency recording
LOSS: Video loss
TRM: Terminal alarm
VMD: Motion detection

Note: Up to 750 event logs can be kept. When more than 750 event logs are filed, old event log will be overwritten by new event log. In this case, the oldest log is the first to be overwritten.

⑧ [Error Log] Check the error log

Error log will be displayed in list form.



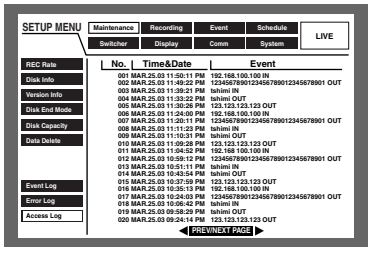
Note: Up to 100 error logs can be kept. When more than 100 error logs are filed, old error log will be overwritten by new error log. In this case, the oldest log is the first to be overwritten.

Indication	Description	Cause
AL*-YYMMDDhhmmss	Asterisk (*) indicates the camera channel number YYDDMMhhmmss indicates the played time when the alteration was detected.	Detects alteration
W-ERR X-Y	X indicates the unit/unit number that has the hard disk error Y indicates the disk number in the unit (unit number)	Failed to write data on the HDD
REMOVE X-Y	X indicates the unit/unit number that has the hard disk that has been removed from the subject for recording. Y indicates the disk number in the unit/unit number	Auto removal of the link
#-FULL	# indicates the partition name/external recording device port number	No available disk space
THERMAL -X	X indicates the unit/unit number in which the thermal error occurred	Thermal error
FAN X-Y	X indicates the unit/unit number Y indicates the fan number (1-4) Y will be left out if the malfunctioning fan is in the extension unit	The fan is malfunctioning
#-nn%	# indicates the partition name of the hard disk/external recording device nn indicates the available disk space	Warning that the disk space is running out

Indication	Description	Cause
SMART X-Y	X indicates the unit/unit number that has the hard disk error Y indicates the unit/unit number	HDD SMART error
PWR LOSS		Detects a power outage
H.METER X-Y	X indicates the unit/unit number that has the hard disk error Y indicates the unit/unit number	Hour-meter warning
PROTECT -#	# indicates port number to which the external recording device is connected	Disk has the write protection
NO DISK -#	# indicates port number to which the external recording device is connected	Disk is not inserted
MEDIUM -#	# indicates port number to which the external recording device is connected	Incompatible disk
UNFORMATTED -#	# indicates port number to which the external recording device is connected	Unformatted disk
W-ERR (MEDIUM-#)	# indicates port number to which the external recording device is connected	Failed to write data on the disk (CD-R, DVD-RAM, DVD-R)
PWR RECOVER		Recover from a power outage

⑨ [Access Log] Check the access log

The time, user name and IP addresses when logging in/out to/from this unit will be displayed in list form.



****IN:** The user name or the IP address displayed before IN indicates the user/host logged in.

****OUT:** The user name or the IP address displayed before OUT indicates the user/host logged out.

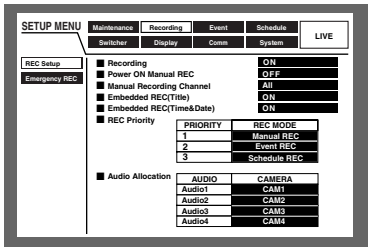
**: A user name (first 15 characters) or host name will be displayed.

Notes:

- Up to 100 access logs can be kept. When more than 100 access logs are filed, old access logs will be overwritten by new access logs. In this case, the oldest log is the first to be overwritten.
- Logs of accesses via an FTP will not be displayed.

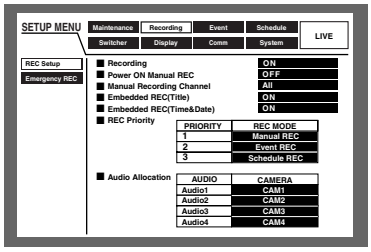
■ [Recording]

Perform the settings for the basic recording (REC Setup) and the emergency recording.



① [REC Setup] Perform the settings for the basic recording.

Perform the following settings for the basic recording.



- **[Recording]**
  Select ON or OFF to record or not record.
  ON: Recording will be performed.
  OFF: No recording will be performed.

Important:

When OFF is selected for this setting, no recordings will be performed. Select ON for normal use except when it is necessary to stop recording forcefully such as when trouble has occurred with the unit.

- **[Power ON Manual REC]**
  Select ON or OFF to determine whether or not to start recording when the power is turned on by the connected external timer (or the switch).
  ON: Manual recording will start automatically after completing the system check.
  OFF: Manual recording will not start automatically after completing the system check.

Important:

When ON is selected, manual recording will start automatically after completing the system check.

Set to ON except when it is necessary to stop recording forcefully such as when the unit is malfunctioning.

- **[Manual Recording Channel]**
  Select a camera channel for manual recording from the followings. Refer to page 19 for manual recording.
  MON2: Images from the camera channel currently displayed on monitor 2 will be recorded.
  ALL: Images from all the camera channels will be recorded.

Important:

Even though "MON2" is selected, images from all the camera channels will be recorded while neither the sequential display nor live images are displayed on monitor 2.

When "MON2" is selected, images from a camera channel for another manual recording that has started later will be recorded regardless of the operation using the buttons on the front panel or via a network.

- **[Embedded REC (Title)]**
  Select ON or OFF to determine whether or not to record a displayed camera title together as a part of the recorded image.
  ON: Record camera titles together as a part of the recorded image.
  OFF: Does not record camera titles.

- **[Embedded REC (Time & Date)]**
  Select ON or OFF to determine whether or not to record the displayed time and date together.
  ON: Record the time and date together as a part of the recorded image.
  OFF: Does not record the time and date.

Important:

It is possible to select ON or OFF to determine whether or not to display the camera title recorded together with the images, even though OFF is selected. (Refer to page 113, 114.)

When ON is selected, it is impossible to hide the camera title and the time and date. (Refer to page 113, 114.)

- **[REC Priority]**
  Assigns priorities to recording modes. Assigns priorities 1 (highest) - 3 (lowest) to each recording mode. When two or more recordings are performed in the same period, only a recording with highest priority will be performed.
  Refer to page 19 for further information about each recording mode.

Important:

- When event pre-recording and post-recording are to be performed with selecting "1" for priority of event recording, it is impossible to perform manual recording.

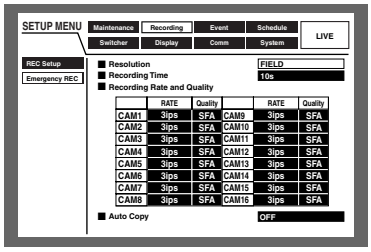
- **[Audio Allocation]**
  Allocates audio from the audio input connectors (1 - 4) on the rear panel of the unit to camera channels.
  Allocate audio in accordance with channels of connected cameras. When OFF is selected, audio will not be heard.

Important:

- When a live image from the audio assigned camera channel is displayed on a single screen on monitor 2, audio will be heard. When displaying on a multi-screen, audio will not be heard.
- When images from the audio assigned camera channel are displayed on a single screen, recorded audio will be heard. When displaying on a multi-screen, recorded audio will not be heard.
- Audio will be recorded regardless of whether you are displaying on a single screen or a multi-screen.
- Audio may be recorded fragmentary occasionally.

② [Emergency REC] Perform the settings for emergency recording

Perform the settings for emergency recording such as the recording time or recording rate for emergency recording.
Refer to page 21 for further information about emergency recording.



- **[Resolution]**
  Select a recording resolution from the following.
  FRAME 3D ON: High resolution (720 x 480), with camera shake compensation
  FRAME 3D OFF: High resolution (720 x 480)
  FIELD: Standard resolution (720 x 240)
  SIF: Low resolution (360 x 240)

Important:

- It is recommended to set same value for the resolution of emergency recording as the resolution of manual recording, event recording and schedule recording.
- Recording will not be performed for around 4 seconds from the beginning of emergency recording when the resolution is switched.

- **[Recording Time]**
  Perform the settings for the recording time and recording action for emergency recording.
  The following are available for the recording time.
  1 s - 10 s (in 1 second intervals)
  20 s/30 s
  1 m - 10 m (in 1 minute intervals)
  20 m/30 m/40 m/50 m/60 m
  MANUAL: Recording will continue while the external switch is being held down.
  CONTINUE: Recording will not stop until the ALARM RESET button on the front panel of the unit is pressed.

- **[Recording Rate and Quality]**
  Perform the settings for the recording rate and image quality for emergency recording.
  The following are available for the recording rate.
  OFF/1 ips/2 ips/3 ips/5 ips/6 ips/7.5 ips/10 ips/15 ips/30 ips/60 ips

Important:

- When OFF is selected for a specified camera channel, images from a camera channel set to OFF will not be recorded.
- When "FRAME 3D ON" or "FRAME 3D OFF" is selected, the total recording rates of CAM 1 - CAM 16 (for the WJ-HD316) must be less than 30 ips.
- When "FIELD" is selected, the total recording rates of CAM 1 - CAM 16 (for the WJ-HD316) must be less than 60 ips.
- When "SIF" is selected, the total recording rates of CAM 1 - CAM 16 (for the WJ-HD316) must be less than 120 ips.
- When "FRAME 3D ON", "FRAME 3D OFF" or "SIF" is selected, it is impossible to select 60 ips.

  The following are available for the image quality.
  SFA/SFB: Top quality (SUPER FINE)
  FQA/FQB: High quality (FINE)
  NQA/NQB: Standard quality (NORMAL)
  EXA/EXB: Low quality (EXTENDED)

  **A is suitable for less dynamic images.
  **B is suitable for more dynamic images.

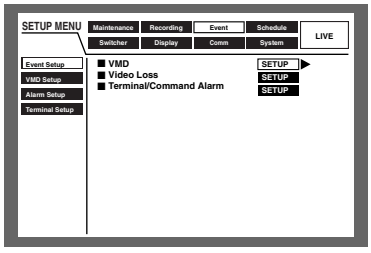
- **[Auto Copy]**
  Select ON or OFF to set whether or not to automatically copy images recorded by emergency recording onto the copy area on the built-in hard disk or DVD-RAM disk.

Important:

When OFF is selected for "Auto Copy" on "Basic setup" of "System", the auto copy function will not work after emergency recording even though ON is selected for this setting. Select "HDD", "COPY 1" or "COPY 2" for "Auto Copy".

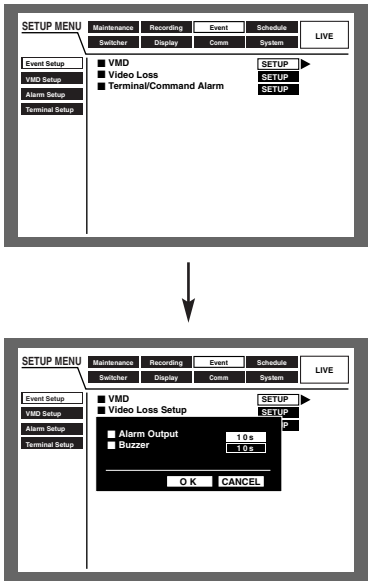
■ [Event] Function for Events

Perform the settings for event actions of each event type (motion detection, video loss, command alarm and terminal alarm).



① [Event Setup] Settings for the alarm output duration and the buzzer duration

Perform the settings for the alarm output duration and the buzzer sound duration for each event type (motion detection, video loss, command alarm and terminal alarm).



The following are available for the alarm output duration.

When OFF is selected, the alarm output will not be supplied.

(s: second, m: minute)

OFF: No alarm output is supplied.

1 s - 30 s (in 1 second intervals)

/40 s/50 s/1 m/2 m/3 m/4 m/5 m

EXT: Alarm output will continue until the ALARM RESET button is pressed.

Important:

The alarm output duration cannot be set for video loss. Signals will be supplied continuously from the camera error output terminal (pin no. 17) of the ALARM/CONTROL connector on the rear panel during the period when the video signal is lost. (Refer to page 82.)

The following are available for the buzzer sound duration.

When OFF is selected, a buzzer will not sound.

(s: second, m: minute)

OFF: The buzzer will not sound.

1 s - 30 s (in 1 second intervals)

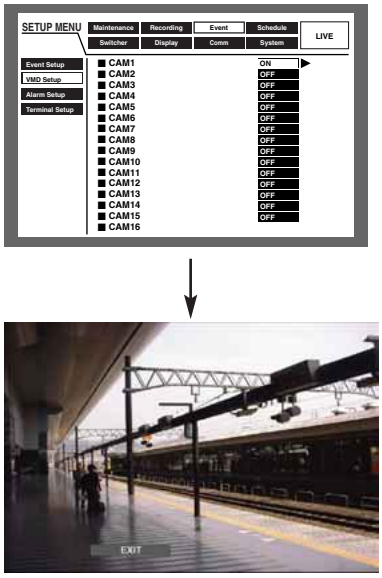
/40 s/50 s/1 m/2 m/3 m/4 m/5 m

EXT: The buzzer will continue until the ALARM RESET button is pressed.

② [VMD Setup] Perform the settings for the motion detection function

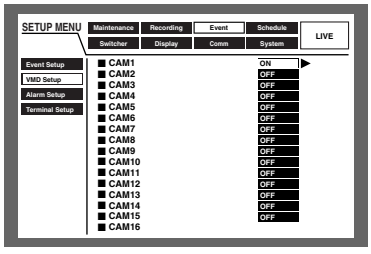
Select ON or OFF to determine whether to enable or disable the motion detection function for each camera channel.

When ON is selected, perform the settings for the auto motion detection area for each camera channel. Up to 4 areas can be set for a camera channel for the detection area. Refer to page 45 for further information about the auto motion detection function.



[Screenshot 1]

Start operation from the camera channel selection menu of the "VMD Setup" window.



1 Rotate the jog dial to select ON for a desired camera channel for which the motion detection function is to be applied, and press the SET button.

[Screenshot 2]

The "VMD Setup" window will be displayed.

2 Rotate the jog dial to select "SETUP AREA" on the status bar.

Note: To set all areas on the monitor as the motion detection area, select "ALL AREAS" and press the SET button.

[Screenshot 3]

The cross cursor will be displayed on the "VMD Setup" window.

3 Move the cross cursor to a desired point to be set as the start point of the motion detection area using the arrows button, and press the SET button.

[Screenshot 4]

The start point of the motion detection area is assigned.

4 Move the cross cursor to a desired point to be set as the end point of the motion detection area using the arrows button, and press the SET button.

[Screenshot 5]

The motion detection area is set with the start point and the end point as the points at opposite angles of the motion detection area.

5 Repeat steps 3 and 4 to set another motion detection area.

Up to 4 areas can be set. The newly created areas will be named automatically as A, B, C and D in the order of creation.

6 To complete the settings, rotate the jog dial to select "EXIT" on the status bar, and press the SET button.

→ The "VMD Setup" window will be closed.

● Delete the motion detection area

[Screenshot 1]

Start operation from the "VMD Setup" window.

1 Rotate the jog dial to select "DELETE AREA" on the status bar.

Note: After selecting "DELETE ALL AREAS", pressing the SET button will delete all of the motion detection areas.

[Screenshot 2]

The cross cursor will be displayed on the "VMD Setup" window.

2 Move the cross cursor onto an area to be deleted using the arrows button and press the SET button.

3 To complete the settings, rotate the jog dial to select "EXIT" on the status bar.
→ The "VMD Setup" window will be closed.

● Set the sensitivity

Set the sensitivity for the created motion detection area. Sensitivity can be set for each area.

[Screenshot 1]

Start operation from the "VMD Setup" window.

1 Rotate the jog dial to select "SENSITIVITY" on the status bar.

[Screenshot 2]

The sensitivity of the selected detection area will be displayed.

2 Move the cross cursor to select an area using the arrows button (◄ ►).

3 Select the sensitivity for the selected area from the following.
OFF: No motion will be detected in this area.
LOW: Low sensitivity
MID: Standard sensitivity
HIGH: High sensitivity

4 To complete the settings, rotate the jog dial to select "EXIT" on the status bar, and press the SET button.
→ The "VMD Setup" window will be closed.

● Set the detection mode

Perform the settings of the detection mode (method of detection) in the set detection area. Specifying a method of detection in a detection area is available by setting the detection mode.

[Screenshot 1]

Start operation from the "VMD Setup" window.

1 Rotate the jog dial to select "VMD MODE" on the status bar.

[Screenshot 2]

The detection mode menu will be displayed.

2 Set the detection mode.
Move the cursor to the desired detection mode using the arrows button (◄ ►).
Move the cursor on the desired detection mode using the arrows button (◄ ►) and check the radio button next to the selected mode using the arrows button (▲ ▼).
Refer to the following for further information about each of the detection modes.

<ANY AREA>
An event action will be performed according to the settings when "motion" is detected in any of the set motion detection areas.

<VECTOR>
Move the cursor to an area for the settings of VECTOR using the arrows button (►) and select an area using the arrows button (▲ ▼). Move the cursor to the parameter box of the selected area using the arrows button (►) and rotate the jog dial to select an interval time for an object moving between each area from the following.
--/5 s/10 s/20 s/30 s/40 s/50 s/1 m(min)

<DURATION>

Move the cursor to the parameter box of each area using the arrows button (►) and select a moving duration for an object in each area from the following using the arrows button (▲ ▼).
--/5 s/10 s/20 s/30 s/40 s/50 s/1 m

3 To complete the settings, rotate the jog dial to select "EXIT" on the status bar, and press the SET button.
→ The "VMD Setup" window will be closed.

● About the Detection mode

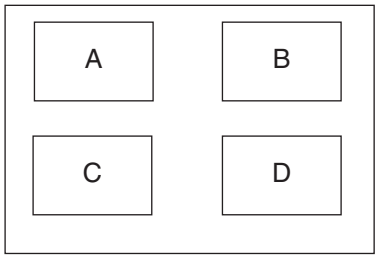
Perform the settings of the detection mode (method of detection) in the set detection area. Specifying a method of detection in a detection area is available by setting the detection mode.
There are three detection modes as follows.

Important:

Activating two or more detection modes simultaneously is not possible.

<ANY AREA (to detect "motion" in the area)>

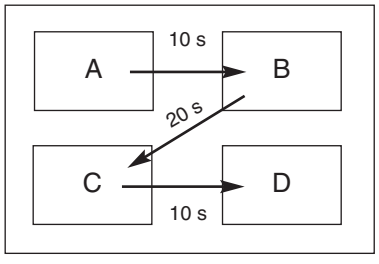
An event action will be performed according to the settings when "motion" is detected in any of the set motion detection areas.



Any motion will be detected anywhere in the A, B, C, D areas.

<VECTOR (to detect object moving to a certain direction)>

An event action will be performed according to the settings when an object moves within the set time to the other detection area in the set order.

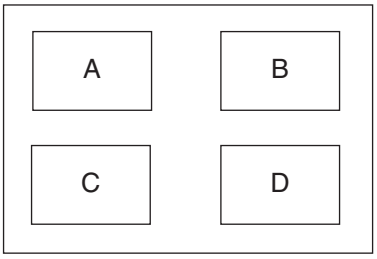


The following is an example.
Motion is detected in area B within 10 seconds after being detected in area A.
Motion is detected in area C within 20 seconds after being detected in area B.
Motion is detected in area D within 10 seconds after being detected in area C.
When all of the above have occurred, an event action will be performed.

<DURATION (to detect objects that keep moving in the area)>

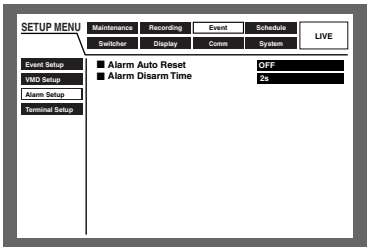
An event action will be performed according to the settings when an object keeps moving for the set period in the detection area. For example, in case of the following settings; 10 sec. for the areas A and B, 20 sec. for area C and 30 sec. for area D:

An event action will be performed when an object keeps moving for 10 seconds in area A or B, or for 20 seconds in area C, or for 30 seconds in area D.



③ [Alarm Setup] Perform the settings for the alarm auto reset and alarm disarm

Perform the settings for the alarm display duration. The alarm display will automatically disappear when the display duration has passed. (Alarm Auto Reset)
Perform the settings to suspend the set duration when the same type of event (motion detection, video loss, terminal alarm, command alarm) has occurred sequentially so that the event action will not be performed each time. (Alarm Disarm)

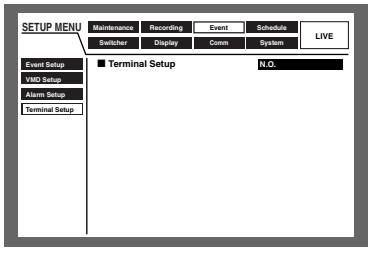


- **[Alarm Auto Reset]**
  The following are possible for the alarm auto reset.
  When OFF is selected, the alarm display will not automatically disappear.
  To erase the alarm display, press the ALARM RESET button.
  OFF/1 s - 30 s (in 1 second intervals)
  40 s/50 s/1 m/2 m/3 m4 m/5 m

- **[Alarm Disarm]**
  The following are possible for the alarm disarm.
  2 s - 10 s (in 1 second intervals)

④ [Terminal Setup] Perform the settings for the alarm terminal polarity.

Select how to supply the signal to the alarm terminal.



N.O.: Signals will be supplied when short-circuited. (Normally Open)
N.C.: Signals will be supplied when open-circuited. (Normally Closed)

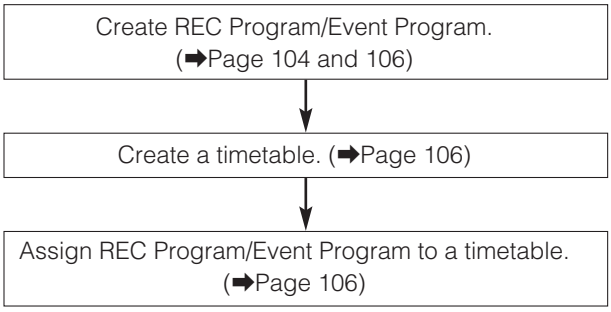
Note: It is possible to set polarities for each of the alarm inputs 1-16 respectively using a PC via a network.

■ [Schedule] Settings for the recording/event action schedule

Perform the settings for the recording schedules of recording and event action by designating a day of the week and time.
A day can be divided into up to 6 time zones, and recording programs and event action programs can be assigned to each time zone to create a recording schedule.
Up to 4 normal recording programs (REC Program) and up to 4 event action programs (Event Program) can be created. Perform the settings for the REC Program: resolution and recording rate. Perform the settings for the Event Program: action mode for each event type and auto copy.
It is possible to create special days apart from the normal schedule, and a recording program of another day of the week can be switched to a special day's program automatically.

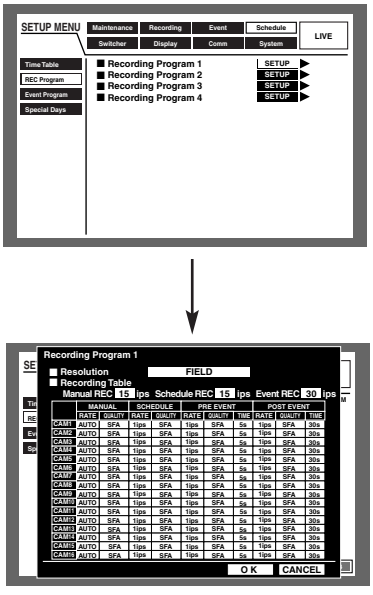
Flowchart how to create a schedule

Follow the procedures below to create schedules.


Create REC Program/Event Program.
(➡Page 104 and 106)
Create a timetable. (➡Page 106)
Assign REC Program/Event Program to a timetable.
(➡Page 106)

① [REC Program] Create a recording program

Perform the settings of resolution, and recording rate for each recording mode, and the recording rate and image quality of each camera channel. Up to 4 recording programs can be created.



● [Resolution]

Select a resolution for images to be recorded from the following.

FRAME 3D ON: High resolution (720 x 480) with the motion blur compensation
FRAME 3D OFF: High resolution (720 x 480)
FIELD: Standard resolution (720 x 480)
SIF: Low resolution (360 x 240)

Note: When "FRAME 3D ON" is selected, it is possible to record a moving object with less blurring.

Important:
In the following cases, recording will not be performed for around 4 seconds:

- When resolution switched such in case that different resolution is set depending on different time zones
- When the SETUP MENU is closed after changing the settings

● Recording Rate for Each Recording Mode

Perform the settings of recording rate for each recording mode (manual recording, schedule recording and event recording).
Assign the maximum recording rate according to the resolution for each recording mode.
The following are the maximum recording rate for each resolution.

Resolution	Maximum recording rate
FRAME 3D ON	30 ips
FRAME 3D OFF	30 ips
FIELD	60 ips
SIF	120 ips

The following are available for the recording rate for each resolution.
OFF/2 ips/3 ips/5 ips/6 ips/7.5 ips/10 ips/15 ips/30 ips/60 ips/120 ips

Important:

- When "FRAME" is selected for "Resolution", "60 ips" and "120 ips" are not available. When "FIELD" is selected, "120 ips" is not available.
- The total recording rates for each recording mode must be less than the maximum recording rate of each resolution.

  Examples: When "FIELD" is selected and set, the total recording rates for each recording mode must be less than 60 ips.
  Manual recording: 15 ips
  Schedule recording: 15 ips
  Event recording: 30 ips

● Recording Rate and Image Quality for Each Camera Channel

Perform the settings for recording rate, image quality and recording duration for each camera channel (only for event pre-recording and event post-recording).
Perform the settings for each recording mode. Assign the recording rate for each camera channel as described in "Recording Rate for Each Recording Mode" above.
The following are for the recording rate. When OFF is selected, images from the selected camera channel will not be recorded.
OFF/0.1 ips/0.2 ips/0.3 ips/0.4 ips/0.5 ips/1 ips/2 ips/3 ips/5 ips/6 ips/7.5 ips/10 ips/15 ips/30 ips/60 ips

AUTO: The recording rate will be set automatically. (Not possible for event pre-recording and event post-recording)

Important:

The total recording rates of each camera channels in the same recording mode must be less than the recording rate as described in "Recording Rate for Each Recording Mode" above.

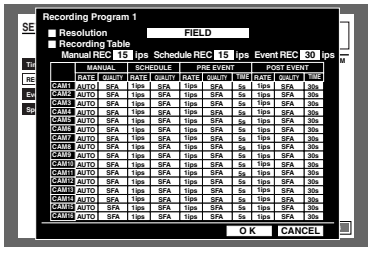
Examples: When selecting "FIELD" for resolution, "15 ips" for manual recording, "15 ips" for schedule recording, "30 ips" for event recording:

Total recording rates of CAM 1 - 16 (manual recording): less than 15 ips

Total recording rates of CAM 1 - 16 (schedule recording): less than 15 ips

Total recording rates of CAM 1 - 16 (event recording): less than 30 ips

When the total of the recording rates becomes more than the set value, the recording mode table will turn red.



The total recording rates between recording rates of event pre-recording and recording rates of event post-recording for each camera channel must be less than the recording rate as described in "Recording Rate for Each Recording Mode" above.

The following are available for the image quality.
SFA/SFB: Top quality (SUPER FINE)
FQA/FQB: High quality (FINE)
NQA/NQB: Standard quality (NORMAL)
EXA/EXB: Low quality (EXTENDED)
**A is suitable for less dynamic images.
**B is suitable for more dynamic images.

The following are available for the recording duration (only event pre-recording and event post-recording).
1 s - 10 s (in 1 second intervals)
20 s/30 s/1 - 10 m (in 1 minute intervals)
20 - 60 m (in 10 minutes intervals)

MAN. (MANUAL): The recording duration will be as follows depending on the event type.
- At a motion detection: For 8 seconds
- At a video loss occurrence: During a video loss occurrence
- At a terminal alarm occurrence: During the supply of a signal
- At a command alarm: For 8 seconds

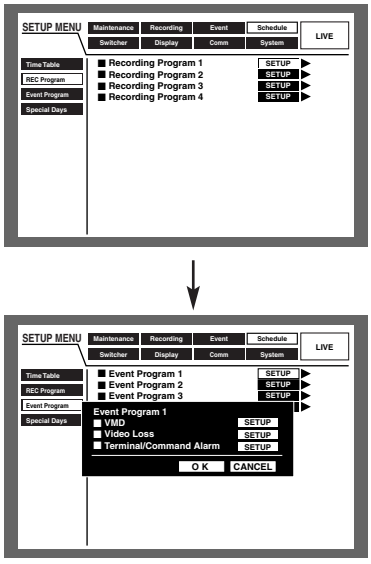
CON. (CONTINUE): Recording will be performed continuously until the ALARM RESET button is pressed.

Notes:
- When performing event pre-recording from a camera channel that does not have its own event pre-recording area, recording time of pre-recording will differ depending on the settings of "Resolution" and "Recording Rate and Quality" for event pre-recording. When the set recording time is longer than the maximum possible recording time, recording rate of pre-recording will be displayed in red.
- When performing event pre-recording from a camera channel that has its own event pre-recording area, recording time of pre-recording will differ depending on the capacity of recording area, the setting of "Resolution" and "Recording Rate and Quality" for event pre-recording. When the set recording time is longer than the maximum possible recording time, recording rate of pre-recording will be displayed in red. Refer to page 135 for further information about pre-recording area.

Important:
Event pre- recording image only just recorded will be deleted in the following cases:
- When the SETUP MENU is closed after changing the settings
- When event post-recording is performed newly
- When time zone of a schedule switched and recording started newly
- When date is been changed

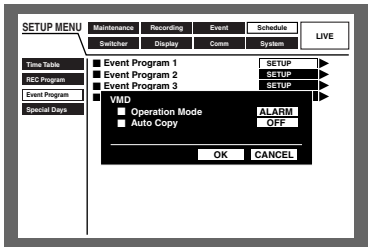
② [Event Program] Create event programs for an event occurrence

Perform the settings of event action for each event type (motion detection, video loss, terminal/command alarm) or of auto copy.



● VMD

Perform the settings of event action at a motion detection or the settings of the auto copy function.



Perform the settings for the following operation mode. Refer to page 45 for further information about each operation mode.

ACT DET (Activity Detection Mode): Performs only recording, writing an event log and camera movement to a preset position at an event occurrence. Other event actions will not be performed.

ALARM (Alarm Mode): Performs every event action according to the settings.

Auto copy is the function to copy recorded images automatically onto the copy area of the hard disk or the DVD-RAM disk.

Select ON or OFF to enable or disable the auto copy function.

ON: Enable the auto copy function

OFF: Disable the auto copy function

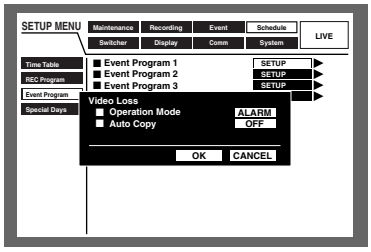
Important:

- When "OFF" is selected for "Auto Copy" of "Basic Setup" on "System", the auto copy function will not work even though "ON" is selected for this setting.
  Select "HDD", "COPY 1" or "COPY 2" for "Auto Copy".
- Images recorded (by event pre-recording) in the pre-recording area on the hard disk will not be copied automatically.

● Video Loss

Perform the settings of event action at a video loss or the settings of the auto copy function.

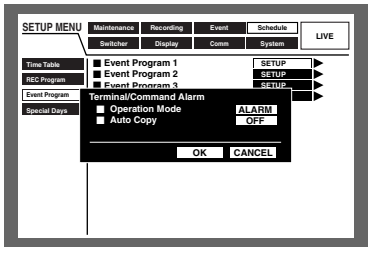
The contents to be set are the same as the settings for "VMD" above.



● Terminal/command alarm

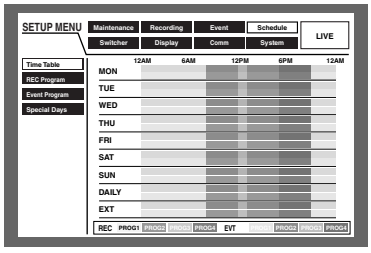
Perform the settings of event action at a terminal/command alarm occurrence or the settings of the auto copy function.

The contents to be set are the same as the settings for "VMD" above.



③ [Time Table] Assignment of REC Program and Event Program after setting the time zone

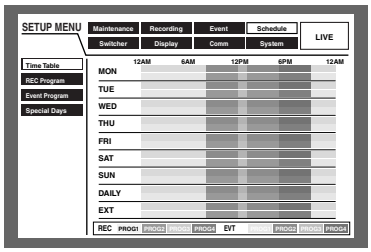
Create recording timetables for each day of the week, and assign REC Program and Event Program to each timetable. Up to 6 recording programs can be created.



Do the following to create timetables.

[Screenshot 1]

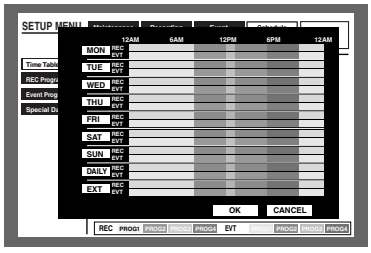
Start operation after displaying the timetable window.



1 Press the SET button.

[Screenshot 2]

The pop-up setting menu of the timetable for every day of the week will be displayed.
The cursor will be displayed and will move to "MON" (Monday).

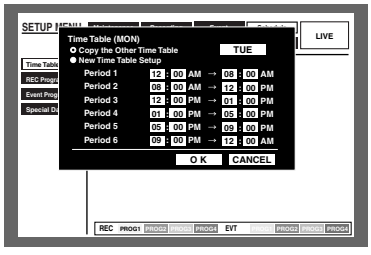


2 Select a day of the week using the arrows button (▼ ▲) and press the SET button.

Note: When a signal is supplied from the ALARM/CONTROL connector on the rear panel the external recording mode changeover terminal (pin no. 24) of the unit will work with the set timetable for "EXT."

[Screenshot 3]

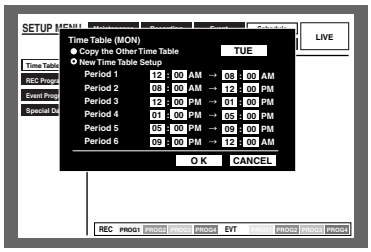
The pop-up settings menu of the timetable for the selected day of the week will be displayed.


SETUP MENU
LIVE
Time Table (MON)
Copy the Other Time Table
TUE
New Time Table Setup
Period 1 12 : 00 AM → 08 : 00 AM
Period 2 08 : 00 AM → 12 : 00 PM
Period 3 12 : 00 PM → 01 : 00 PM
Period 4 01 : 00 PM → 05 : 00 PM
Period 5 05 : 00 PM → 09 : 00 PM
Period 6 09 : 00 PM → 12 : 00 AM
O K
CANCEL
REC
PROG1
EVT

3 Select "New Time Table Setup" using the arrows button (▼ ▲) and rotate the jog dial to check the radio button.

[Screenshot 4]

The radio button for "New Time Table Setup" is checked.


SETUP MENU
LIVE
Time Table (MON)
Copy the Other Time Table
TUE
New Time Table Setup
Period 1 12 : 00 AM → 08 : 00 AM
Period 2 08 : 00 AM → 12 : 00 PM
Period 3 12 : 00 PM → 01 : 00 PM
Period 4 01 : 00 PM → 05 : 00 PM
Period 5 05 : 00 PM → 09 : 00 PM
Period 6 09 : 00 PM → 12 : 00 AM
O K
CANCEL
REC
PROG1
EVT

4 Move the cursor to the start time input box for "Period 1" using the arrows button.

5 Rotate the jog dial to set the start time.
The end time can be set in the same way.
Repeat steps 4 and 5 to set for "Period 2" - "Period 6".
(It is not necessary to set for all of "Period 1" - "Period 6".)

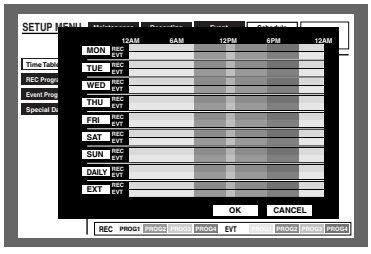
6 Select OK using the arrows button and press the SET button.

Notes:

- Start time and end time can be set in 15 minutes intervals.
- To copy a timetable that is set for a different day of the week, select "Copy the Other Time Table" and select a day of the week by rotating the jog dial in step 3.
  Then, move the cursor to select OK and press the SET button.
- When the SET button is pressed after moving the cursor to CANCEL in step 6, the settings will be canceled and the selected timetable window will be closed.
- Until the SET button is pressed after moving the cursor to CANCEL in step 6, the settings will not be applied to the selected timetable.

[Screenshot 5]

The settings are applied to the selected timetable and the timetable for all the days of the week will be displayed.



7 Move the cursor to the time zone of the day of the week to which the REC program is to be assigned using the arrows button.

8 Rotate the jog dial to select a desired REC program/ Event program.
(Rotating the jog dial changes the displayed REC program.)
REC progam will be displayed with different colors.
Orange: REC program 1/Event program 1
Yellow: REC program 2/Event program 2
Pale purple: REC program 3/Event program 3
Indigo blue: REC program 4/Event program 4

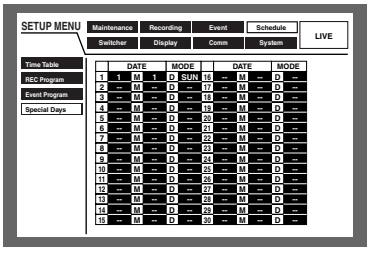
Repeat steps 7 and 8 to assign REC program to other timetables.

9 Move the cursor to OK using the arrows button and press the SET button.
→ The REC program/Event program will be assigned to the selected time zone and the selected timetable window will be closed.

Note: When the SET button is pressed after moving the cursor to CANCEL in step 9, the settings will be canceled and the selected timetable window will be closed.

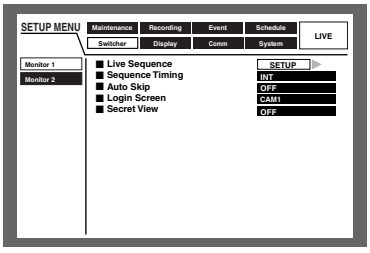
④ [Special Days] Perform the settings for recording programs for special days

Assign timetables to special days aside from other days of the week. Timetables for special days can be set for up to 30 days.
Perform the settings to specify dates as special days and apply the recording schedule to the special days.



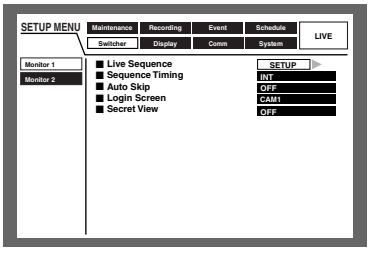
■ [Switcher] Settings for the switcher function

Perform the settings for image switching such as the sequential display setting or the waiting screen (while logging out) setting for displaying on monitors 1 and 2.



① [Monitor 1] Switcher function of monitor 1

Perform the settings for the switcher function of monitor 1.

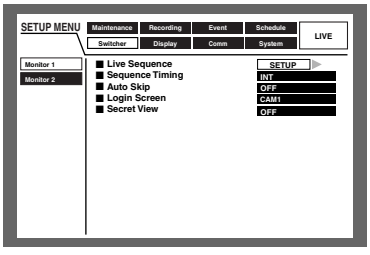


● Live Sequence

Perform the settings for the sequential display of live images as follows.

[Screenshot 1]

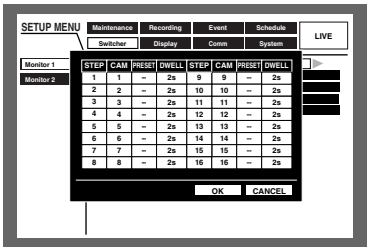
Start operation from the "Monitor1" menu of "Switcher" on the SETUP MENU.



1 Move the cursor to "Live Sequence" using the arrows button (▼ ▲) and press the SET button.

[Screenshot 2]

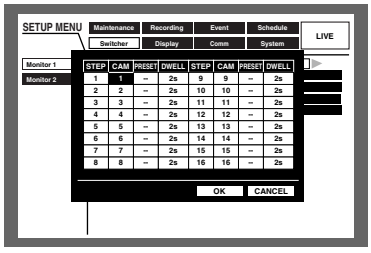
The "Live Sequence" pop-up menu will be displayed.



2 Move the cursor to "CAM" of "STEP 1" using the arrows button.

[Screenshot 3]

The cursor moves to "CAM".



3 Select how to display images from camera channels in "STEP 1" from the following by rotating the jog dial.

1, 2, ... , 16: Displays an image from the selected camera channel on a single screen.

1 - 4: Displays images from the camera channels 1 - 4 on a 4-split screen.

5 - 8: Displays images from the camera channels 5 - 8 on a 4-split screen.

9 - 12: Displays images from the camera channels 9 - 12 on a 4-split screen.

13 - 16: Displays images from the camera channels 13 - 16 on a 4-split screen.

1 - 9: Displays images from the camera channels 1 - 9 on a 9-split screen.

10 - 16 (Only for the WJ-HD316): Displays images from the camera channels 10 - 16 on a 9-split screen.

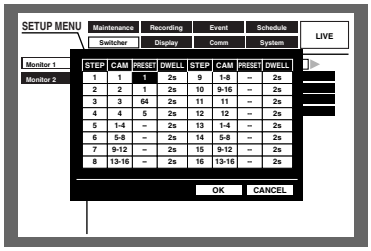
--: Skips the selected step.

4 When displaying image from camera channels "1 - 16" on a single screen is selected in step 3, select the camera position.

Move the cursor to "PRESET" in "STEP 1" using the arrows button.

[Screenshot 4]

The cursor moves to the "PRESET" in "STEP 1".

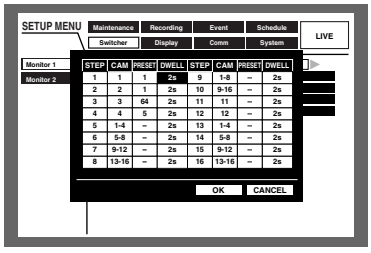


5 Rotate the jog dial to select a preset position number for which image is displayed in "STEP 1" from the following.
1 - 64: Moves to the selected preset number.
--: Does not move to the preset position.

6 Select "DWELL" in "STEP 1" using the arrows button.

[Screenshot 5]

The cursor moves to"DWELL" in "STEP 1".



7 Rotate the jog dial to select an interval time to go to the next sequential step from 1 - 30 seconds (in 1 second intervals).
The sequence step is skipped when "0 s" is selected.
Repeat steps 2 and 7 to set for other sequence steps.

8 Move the cursor to "OK" using the arrows button and press the SET button.
→ The settings for the sequential display are set and the sequence setting menu closes.

Note: If you move the cursor to "CANCEL" in step 8 and press the SET button, the setting will be canceled and the sequence setting menu will be closed.

● Sequence Timing

Select an image switching way from the following.
INT: Switches images according to the settings for the live sequence.
EXT: Switches images by signals from an external device.
MON 2: Match with the image switching timing of the live sequence on monitor 2.

● Auto Skip

Select ON of OFF to determine whether or not to skip the camera channel without supplying the video input signal because it is not connected, etc.
ON: Skips a channel if it is not connected.
OFF: Displays a black screen for a channel not connected.

● Login Screen

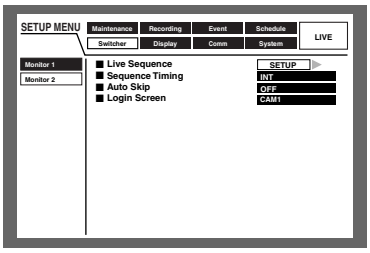
Select a camera image to be displayed during the login procedure from the following.
CAM1 - 16: Displays an image from the selected camera channel.
QUAD1 - 4: Displays images from the camera channels 1 - 4 on a 4-split screen.
QUAD5 - 8: Displays images from the camera channels 5 - 8 on a 4-split screen.
QUAD9 - 12: Displays images from the camera channels 9 - 12 on a 4-split screen.
QUAD13 - 16: Displays images from the camera channels 13 - 16 on a 4-split screen.
7 SCREEN: Displays images from the camera channels 1 - 7 on a 7-split screen.
9 SCREEN 1 - 9: Displays images from the camera channels 1 - 9 on a 9-split screen.
9 SCREEN 10 - 16 (only for the WJ-HD316): Displays images from the camera channels 10 - 16 on a 9-split screen.
10 SCREEN: Displays images from the camera channels 1 - 10 on a 10-split screen.
13 SCREEN: Displays images from the camera channels 1 - 13 on a 13-split screen.
16 SCREEN: Displays images from the camera channels 1 - 16 on a 16-split screen.
--: No camera image will be displayed (black screen)

● Secret View

The secret view is a function to display a black screen on monitor 1 when camera images are displayed with a single screen on monitor 2. Select ON or OFF to determine whether to enable or disable the secret view function.
ON: Enables the secret view function. (Camera image displayed with a single screen on monitor 2 will be displayed while monitor 1 has a black screen.)
OFF: Disables the secret view function.

② [Monitor 2] Switcher function of monitor 2

Perform the settings for the switcher function of monitor 2.



● Live Sequence

The settings for "Live Sequence" are the same as for "Monitor1". Refer to page 109 for further information.

● Sequence Timing

The settings for "Sequence Timing" are the same as for "Monitor1". Refer to page 110 for further information.

Notes:

- "EXT" is selectable only when an external device that can transmit a sequence signal is connected.
- The sequence changeover I/O (pin no.21) of the ALARM/CONTROL connector on the rear panel will supply signals when "INT" is selected and will receive signals when "EXT" is selected.

● Auto Skip

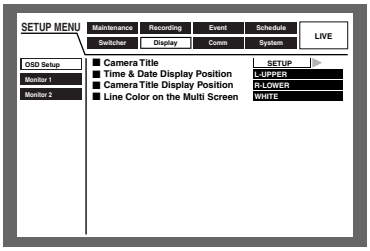
The settings for "Auto Skip" are the same as for "Monitor1". Refer to page 110 for further information.

● Login Screen

The settings for "Login Screen" are the same as for "Monitor1". Refer to page 110 for further information.

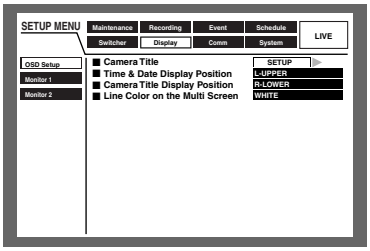
■ [Display]

Perform the display settings for monitors 1 and 2 connected to the unit.



① OSD Setup

Perform the On Screen Display settings for monitor 1 and monitor 2 such as the settings of camera titles or the settings of the time display position.

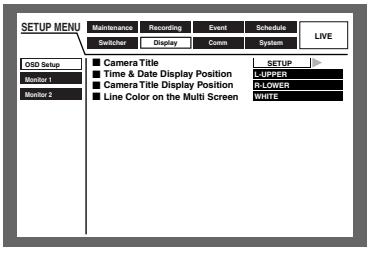


● Camera Title

Perform the settings for the camera title. It is possible to display a camera title on the monitor 1/monitor 2, and record it as a part of the recorded image. Do the following to set the camera title.

[Screenshot 1]

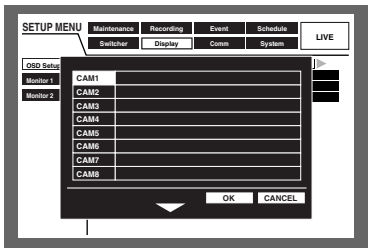
Start operation from the "OSD Setup" menu.



1 Move the cursor to "Camera Title" using the arrows button (▼ ▲) and press the SET button.

[Screenshot 2]

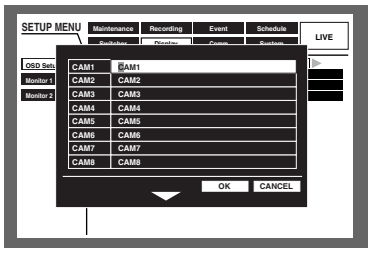
The camera title pop-up window will be displayed.



2 Move the cursor to "CAM1" using the arrows button.

[Screenshot 3]

The cursor moves to " CAM1".

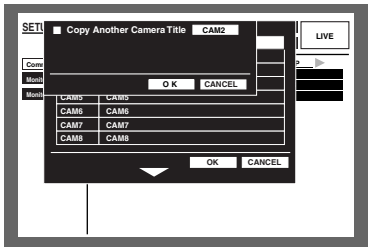


3 Select a character to be entered by rotating the jog dial. Up to 16 characters can be entered.

4 Move the cursor to the right side of the entered character using the arrows button.
Repeat steps 3 and 4 to enter the camera title.

Notes:

- To correct the entered characters, move the cursor to the character to be corrected and press the STOP button to delete it. Enter a correct character after deleting.
- To copy the camera title that has been set for another camera channel, follow the procedure below.
  1. Move the cursor to "CAM 1" in step 2 on the previous page and press the SET button. The following screen will be displayed.



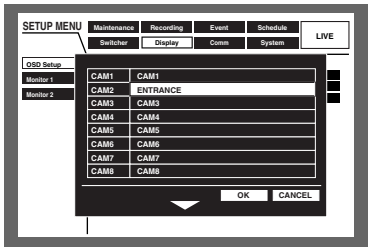
  2. Select the camera channel for which the camera title is to be copied by rotating the jog dial.

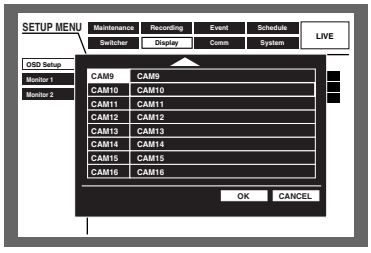
3. Move the cursor to "OK" using the arrows button and press the SET button. The camera title will be copied.

- The following characters can be entered for a camera title:
  0 1 2 3 4 5 6 7 8 9 A B C D E F G H I J K L M N O P Q R S T U V W X Y Z a b c d e f g h i j k l m n o p q r s t u v w x y z À Ä Â Æ Ç É Ì Ñ Ò Ö Ù Ü Ø ß à á â ä å æ ç è é ê ë ì í î ï ñ ò ó ô ö ù ú ü ø < > = ? ” # & ( ) * + , - . / : ; SP

[Screenshot 4]

The camera title is entered.





5 Press the arrows button to move the cursor to "OK" and press the SET button.
→ The camera title will be set and the setting window of the camera title will be closed.

Notes:

- If you move the cursor to "CANCEL" in step 5 and press the SET button, the setting will be canceled and the setting window of the camera title will be closed.
- It is possible to set "Camera Title [Display]" to display a camera title on the monitor 2 and "Camera Title [Embedded]" to embed/display a camera title on the monitor 1 individually using a PC via a network. Refer to the Network Setup Instruction (PDF) for further information.

● Time & Date Display Position

Select a time and date display position from the following.
L-UPPER: Displays the time at the upper left of the screen.
R-UPPER: Displays the time at the upper right of the screen.
L-LOWER: Displays the time at the lower left of the screen.
R-LOWER: Displays the time at the lower right of the screen.

Notes:

- When setting the time and date to be recorded together with images, the time display will be recorded in the selected position.
- Refer to page 97 for further information about "Embedded REC (Time & Date)".

● Camera Title Display Position

Select a camera title display position from the following.
L-UPPER: Displays the camera title at the upper left of the screen.
L-LOWER: Displays the camera title at the lower left of the screen.
R-UPPER: Displays the camera title at the upper right of the screen.
R-LOWER: Displays the camera title at the lower right of the screen.
CENTER: Displays the camera title at the center of the screen.

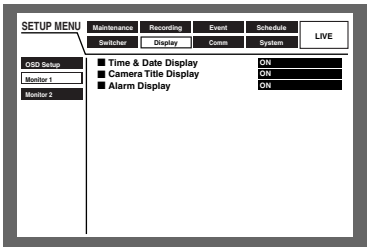
Note: When setting the camera title to be recorded together with images, the time display will be embedded in the selected position.
Refer to page 97 for further information about "Embedded REC (title)".

● Line Color on the Multi Screen

Select a line color from the following.
WHITE: Displays white lines.
GRAY: Displays gray lines.
BLACK: Displays black lines.

② [Monitor 1] Settings on monitor 1 display

Select ON and OFF whether or not to display the time, camera title and alarm display on the monitor 1.



● Time & Date Display

Select ON and OFF whether or not to display the time.
ON: Displays time.
OFF: Does not function.

● Camera Title Display

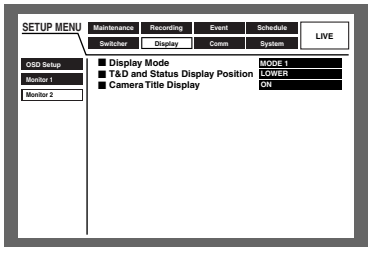
Select ON and OFF whether or not to display the camera title.
ON: Displays the camera title.
OFF: Does not function.

● Alarm Display

Select ON and OFF whether or not to activate the alarm display at an event occurrence.
ON: Displays the alarm display at an event occurrence.
OFF: Does not function.

③ [Monitor2] Settings on monitor 2 display

Perform the display settings for monitor 2 such as the display mode (task bar style), time display position on/off, camera title display position, etc.



The following explains the settings for monitor 2 and the VGA monitor such as the display mode (task bar style), time display position, camera title display ON/OFF, etc.

● Display Mode

Select a display mode (task bar style) from the following.
Refer to page 12 for further information about the task bar.
MODE 1: Select [MODE 1] for the display mode.
MODE 2: Select [MODE 2] for the display mode.
MODE 3: Select [MODE 3] for the display mode.

● T & D and Status Display Position

When selecting MODE 1, select the position of the time and date display and the status from the following.
UPPER: Displays them in the upper part of the screen.
LOWER: Displays them in the lower part of the screen.

● Camera Title Display

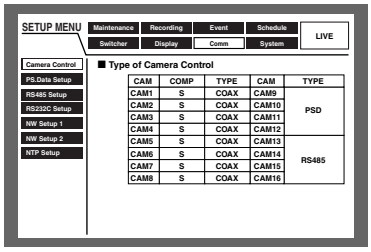
Select ON and OFF whether or not to display the camera title.
ON: Displays the camera title.
OFF: Does not function.

■ [Comm] Settings for communication with other devices

It is necessary to adjust the communication speed and use the same communication protocol with external devices such as a controller when connecting those external devices to the DATA port or the SERIAL connector (RS232C).
It is also necessary to perform the settings for the network such as the IP address and the gateway address when operating this unit a PC via a network such as a LAN.
These are the descriptions of how to perform the required settings for communication with external devices.

① [Camera Control] Settings for the communication method and the cable compensation for camera control

Select a communication method for each camera channel to control cameras from the following.



COAX: Controls camera with the coaxial communication (CAM 1 - 8 CH are available for the WJ-HD316, CAM 1 - 6 CH are available for the WJ-HD309)

PSD: Controls camera with the PS·Data. (CAM 9 - 16 CH are available for the WJ-HD316, CAM 7 - 9 CH are available for the WJ-HD309)

RS 485: Controls camera with the RS 485 communication. (CAM 1 - 16 CH are available for the WJ-HD316, CAM 1 - 9 CH are available for the WJ-HD309)

OFF: Does not control camera (CAM 1 - 16 CH are available)

Notes:

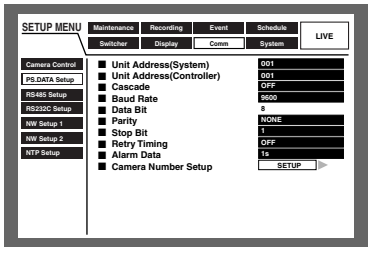
- Perform settings according to the cameras connected to this unit.
- CAM 9-16 control 4 cameras each (only for the WJ-HD316).
- When using the coaxial communication to control cameras, connect cameras to the VIDEO IN connectors 1 - 8 for the WJ-HD316 (1 - 6 for the WJ-HD309) (coaxial communication compatible). When controlling cameras connected to other VIDEO IN connectors with coaxial communication, use a coaxial communication unit (WJ-MP204). In this case, select "PSD" for the communication method for the camera channels to be controlled through the coaxial communication unit.
- To prevent operation mistakes, set the unused camera channels to off.
  It is possible to compensate for the video signal transmission loss from the camera when using the VIDEO IN connector 1 - 8. (cable compensation)
  Perform the settings for the cable compensation according to the length of cable used.
  S: When the length of cable used is shorter than 500 m
  M: When the length of cable used is longer than 500 m and shorter than 900 m
  L: When the length of cable used is longer than 900 m and shorter than 1 200 m

Notes:

- Use 5C-2V cables for the cable compensation.
- Perform the settings for the cable compensation properly according to the cable length. Otherwise camera pictures may not be displayed/recorded correctly.

② [PS.Data Setup] Settings for the PS·Data

Perform the following settings for the PS·Data.



● Unit Address (System)

A unit address (System) is a unique number assigning to PS·Data devices. The addresses must be unique to identify system devices when connecting multiple devices compatible with PS·Data. Numbers, "001"-"099", are to be assigned as the unit addresses to the system devices.

● Unit Address (Controller)

The unit address (controller) is used to control a PS·Data device connected to this unit. Numbers, "001" - "099" are to be assigned.

● Cascade

Select ON or OFF whether or not to use the cascade connection.
Set this to ON when connecting two or more units or in the cascade connection.

ON: Select this when connecting units in the cascade connection.

OFF: Does not function.

● Baud Rate

Select the communication speed for data transmission with a connected device from the following.
2 400/4 800/9 600/19 200/38 400 bps

● Data Bit

It is impossible to change the value for this setting.
8 bit

● Parity

Select a method to check a transmission error at communication from the following.
NONE: No parity check
EVEN: Even parity
ODD: Odd parity

● Stop Bit

Select a stop bit from the following.
1 bit/2 bit

● Retry Timing

Select a retransmission interval for when data reception is not confirmed from the following.
OFF/100 ms/200 ms/400 ms/1 000 ms

● Alarm Data

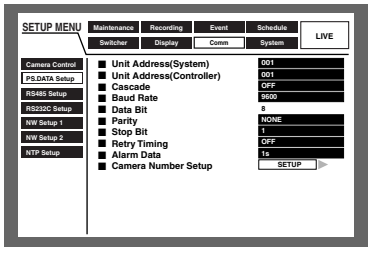
Select a method to inform the connected controller of an event occurrence from the following.
OFF: Does not function.
0 s: Informs the controller every time an event is detected.
1 s/5 s: Informs the controller when a specified time has passed after detecting an event.

● Camera Number Setup

It is possible to assign a number to each camera channel to operate cameras using the controller compatible with PS·Data.
Do the following to assign numbers to the camera channels.

[Screenshot 1]

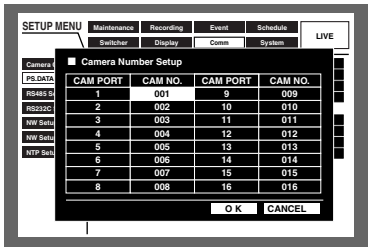
Start operation from the "PS·Data Setup" menu.



1 Move the cursor to "Camera Number Setup" using the arrows button (▼ ▲) and press the SET button.

[Screenshot 2]

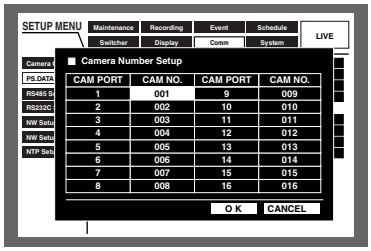
The "Camera Number Setup" pop-up window will be displayed.



2 Move the cursor to a desired "CAM No." of "CAM PORT" using the arrows button.

[Screenshot 3]

The cursor will move to the selected "CAM No." of "CAM PORT".



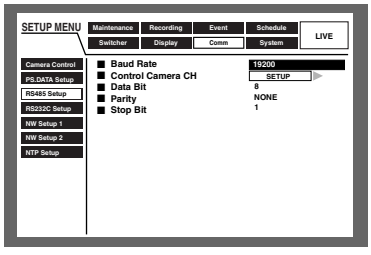
3 Select a camera number by rotating the jog dial.
Repeat steps 2 and 3 to assign camera numbers to the other CAM PORT.

4 Move the cursor to "OK" using the arrows button and press the SET button.
→ Camera numbers will be assigned and the "Camera Number Setup" menu will be closed.

Notes:
- When you move the cursor to "CANCEL" in step 4 and press the SET button, the settings will be canceled and the "Camera Number Setup" menu will be closed.
- The assignment of camera numbers will not be applied until the SET button is pressed after moving the cursor to "OK" in step 4.

③ [RS485 Setup] Settings for RS485

Perform the following settings for RS485.



● Baud Rate

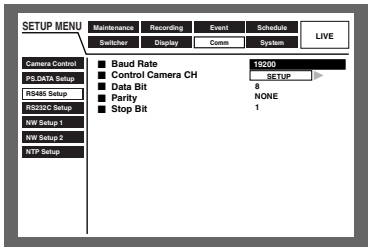
Select the communication speed for data transmission with a connected device from the following.
4 800/9 600/19 200 bps

● Control Camera CH

It is possible to assign camera channels to the RS485 ports 1 and 2 as shown below.

[Screenshot 1]

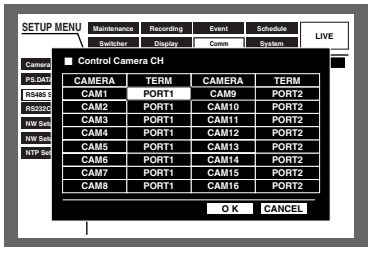
Start operation from the "RS485 Setup" menu.



1 Move the cursor to "Control Camera CH" using the arrows button (▼ ▲) and press the SET button.

[Screenshot 2]

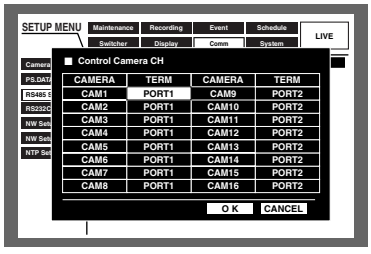
The "Control Camera CH" pop-up window will be displayed.



2 Move the cursor to a desired cell in the "TERM" column using the arrows button.

[Screenshot 3]

The cursor will move to the selected cell in the "TERM" column.



3 Select a port by rotating the jog dial.
PORT 1: Control through the RS485 port 1.
PORT 2: Control through the RS485 port 2.
Repeat steps 2 and 3 to assign other camera channels to be controlled through the RS485 ports.

4 Move the cursor to "OK" using the arrows button and press the SET button.
→ Camera channels and ports to be controlled will be assigned and the "Control Camera CH" menu will be closed.

Notes:

- When you move the cursor to "CANCEL" in step 4 and press the SET button, the settings will be canceled and the "Camera Number Setup" menu will be closed.
- The assignment of camera channels will not be applied until the SET button is pressed after moving the cursor to "OK" in the step 4.
- The unit number of the camera will be congruent with the camera number.

● Data Bit

The data length for communication will be displayed.
It is impossible to change the value for this setting.

● Parity

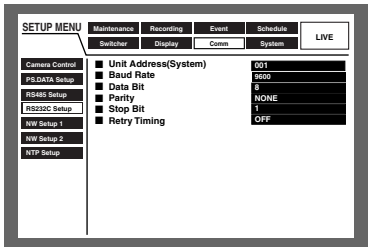
Methods to check a transmission error at communication will be displayed.
It is impossible to change the value for this setting.

● Stop Bit

Number of stop bit will be displayed.
It is impossible to change the value for this setting.

④ [RS232C Setup] Settings for RS232C

Perform the following settings for RS232C.



● Unit Address(System)

A unit address (System) is a unique number assigned to each system device. The addresses must be unique to identify system devices when connecting multiple system devices.
Numbers, "001"-"099", are to be assigned as the unit addresses for the system devices.

● Baud Rate

Select the communication speed for data transmission with a connected device from the following.
9 600/19 200/38 400 bps

● Data Bit

Select a data length for communication from the following.
7/8 bit

● Parity

Select a method to check a transmission error at communication from the following.
NONE: No parity check
EVEN: Even parity
ODD: Odd parity

● Stop Bit

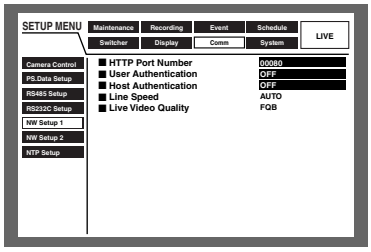
Select a stop bit from the following.
1/2 bit

● Retry Timing

Select a retransmission interval for when data reception is not confirmed from the following.
OFF/100 ms/200 ms/400 ms/1 000 ms

⑤ [NW Setup 1] Basic network settings

Perform the following basic network settings to operate this unit using a PC via a network such as a LAN.



● HTTP Port Number

Specify the HTTP port number to be used to transfer images from this unit. It is not necessary to change it for normal use.

● User Authentication

Select ON and OFF whether or not to activate user authentication at the time of access from a PC to this unit.
When ON is selected, the user authentication (login) window will be displayed at the time of access from a PC.
The top page will be displayed if the entered user name and password are registered.
ON: Activates user authentication.
OFF: Does not function.

Note: It is recommended to select ON for the user authentication for security.

● Host Authentication

Select ON or OFF whether or not to restrict access by IP addresses at the time of access from a PC to this unit.
When ON is selected, only PCs with registered IP address can access this unit
Using the user and host authentication together will enhance the network security.
ON: Activates host authentication.
OFF: Does not function.

● Line Speed

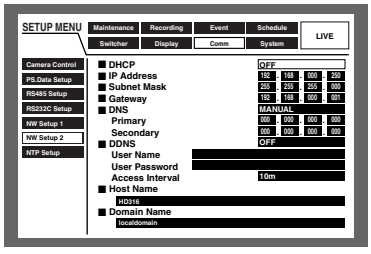
The line speed will be displayed.
It is impossible to change the value for this setting.

● Live Video Quality

Image quality level for a live (FQB: high quality) will be displayed.
It is impossible to change the value for this setting.

⑥ [NW Setup 2] Network connection settings

Perform the following network connection settings to operate this unit using a PC via a network such as a LAN.



● DHCP

Select ON or OFF whether or not to use the DHCP server.
When obtaining IP addresses, net mask and a gateway address from the DHCP server, set to ON.
If not, set to OFF and enter those addresses manually.
ON: Uses the DHCP server.
OFF: Does not use the DHCP server.

● IP Address

Enter an IP address when OFF is selected for "DHCP".
For this unit, enter 4 units of the decimal number (0-254).

● Subnet Mask

Enter a subnet mask according to the network configuration when OFF is selected for "DHCP".

● Gateway

Enter the gateway address according to the network configuration when OFF is selected for "DHCP".

● DNS

Select "MANUAL" or "AUTO" to enable searching an IP address by its host name using DNS. When "OFF" is selected for "DHCP" (no use of the DHCP server), select "MANUAL" and enter the domain name and the DNS server address. If "ON" is selected for "DHCP" (use of the DHCP server), select "AUTO". When DNS is not used, select "OFF". When "MANUAL" is selected for DNS, enter the DNS server address for "Primary" and "Secondary".

● DDNS

Select ON and OFF whether or not to use the DDNS (Dynamic Domain Name Server).
Selecting ON is available only when "MANUAL" or "AUTO" is selected for "DNS".
When "ON" is selected, perform the following.

User Name: Enter the user name registered in "DDNS".

Password: Enter the password for the user entered in "User Name".

Access Interval: Select an interval to update DNS from the following.
10 m/30 m/1 h/6 h/24 h

● Host Name

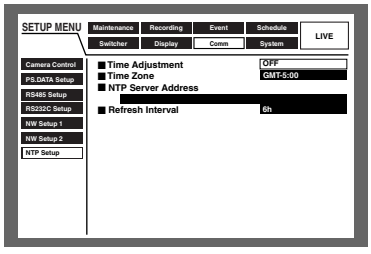
Enter the host address registered in DDNS.
Enter a host name of no more than 255 alphanumeric characters. Hyphens (-) are also available for the host name.

● Domain Name

Enter the domain name of this unit.
Enter a domain name of no more than 255 alphanumeric characters. Hyphens (-) are also available for the domain name.

⑦ [NTP Setup] Time adjustment of network

Perform the following settings for time adjustment.



● Time Adjustment

Select ON and OFF whether or not to adjust the time with reference to the NTP server.

ON: Adjusts time with reference to the NTP server.

OFF: Does not function.

● Time Zone

Set the time zone in accordance with the place of use when using the NTP server for time adjustment.

● NTP Server Address

Enter the NTP server address when using the NTP server for time adjustment.

● Refresh Interval

Select an interval of time inquiry to be transmitted to the NTP server from the following.
1 h/2 h/6 h/12 h/24 h

Important:

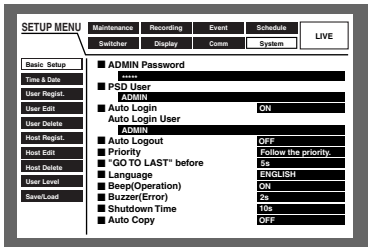
Recording will not be performed for around 4 seconds when changing the present time (accurate within ±5 seconds) using "Time Adjustment".

■ [System] Settings on System

Perform the following system settings required to operate this unit.

① [Basic Setup] Basic system settings

Perform the following settings for basic operation.



● ADMIN Password

Set the password for an administrator.
Enter 4-32 alphanumeric characters.
The same method is used to enter, insert and delete characters as for attaching text information to images. Refer to page 55 about available characters.

● PSD User

When a user operates a controller compatible with PS·Data, operation will be restricted by the priority and operational level of the PSD user.
A PSD user should be one of the users registered in this unit.

● Auto Login

Select ON and OFF whether or not to activate the auto login function when turning the power of this unit on.
ON: Activates the auto login function.
OFF: Does not activate the auto login function. It is necessary to perform the login operation every time this unit is started up.

● Auto Login User

When ON is selected for "Auto Login", the user registered as auto login user in this setting can log in the unit automatically.
An auto login user should be one of the users registered in this unit.

● Auto Logout

Select ON or OFF whether or not to activate the auto logout function.
When ON is selected, auto logout will be carried out after a specified time has passed while displaying live image without operation.
OFF: Does not activate the auto logout function.
1 m/2 m/3 m/4 m/5 m/30 m: Activates the auto logout function when the selected time has passed after login.

Important:

The auto logout function will not be activated when ON is selected for "Auto Login".
Depending on the user level of the auto login user, operable functions may be different.

● Priority

Assign operating priorities when multiple users access this unit simultaneously from the following.
Follow the priority: Operation by a user with higher priority will be performed.
Pre-priority: Operation by the first accessed user will be performed regardless of priority.
Post-priority: Operation by the last accessed user will be performed regardless of priority.

● "GO TO LAST" before

Select time to be skipped to when the "GO TO LAST" button is pressed during playback from the following.
5 s/10 s/30 s/1 m/5 m

● Language

Select a language for the SETUP MENU from the following.
JAPANESE/ENGLISH/FRANÇAIS/ESPAÑOL/DEUTSCH/ITALIANO

● Beep (Operation)

Select ON or OFF whether or not to sound the buzzer when operating the buttons.
ON: Sounds the buzzer when operating the buttons.
OFF: Does not sound the buzzer when operating the buttons.

● Buzzer (Error)

Select a buzzer operation when a problem has occurred from the following.
OFF: Does not sound buzzer when a problem has occurred.
1 s - 30 s (in 1 second intervals)/40 s/50 s/1 m/1 m/3 m/4 m/5 m (in 1 minute intervals): A buzzer will sound for the selected duration after a problem has occurred.
EXT: The buzzer will sound continuously until the "ALARM RESET" button on the front panel of the unit is pressed.

● Shutdown Time

Select a waiting time before starting the internal processing against the power outage after an outage detection signal has been supplied to the unit from the following.
10 s/20 s/30 s/1 m/2 m/3 m/4 m/5 m

● Auto Copy

ON or OFF whether or not to copy recorded images to the copy area on the hard disk automatically.

OFF: Does not copy automatically.

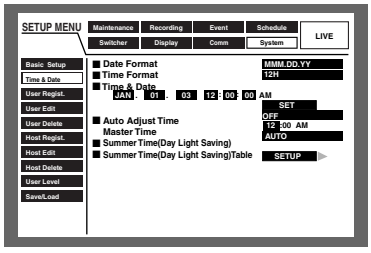
ON: Copies recorded images to the copy area on the hard disk of this unit.

Important:

- When OFF is selected, the auto copy function at an event occurrence and emergency recording will not function.
- The auto copy will not work if a DVD-RAM disk drive is not connected even though "COPY 1" or "COPY 2" is selected.
- Images recorded (by event pre-recording) in the pre-recording area on the hard disk will not be copied automatically.

② [Time & Date] Setting of the date and time

Perform the following settings of the time and date.



● Date Format

Select a display format for the date from the following. (Ex. April 1, 2003)

YY.MM.DD: 03.4.1

MMM.DD.YY: APR.1.03

DD.MMM.YY: 1.APR.03

● Time Format

Select a display format for the time from the following. (Ex. 3 o' clock just in the afternoon)

12h: 3:00:00 PM

24h: 15:00:00

● Time Setup

Adjust the current time and date.

Enter year, month, day, hour, minute and second in order, move the cursor to "SET" and press the SET button.

Important:

Recording will stop for around 4 seconds just after setting date and time.

● Auto Adjust Time

Select a method for auto time adjustment from the following.

When "MASTER" is selected, a signal will be supplied from the ALARM/CONTROL connector as the MASTER time (see below) at the specified time.

OFF: Does not function.

MASTER: A signal will be supplied from the ALARM/CONTROL connector on the rear and the clock of other devices will be adjusted with reference to the time of this unit.

SLAVE: A signal will be supplied to the ALARM/CONTROL connector on the rear and clock of this unit will be adjusted.

Important:

Recording will not be performed for around 4 seconds when changing the present time (accurate within ±5 seconds) using the time adjustment input (pin no.20) of the ALARM/CONTROL connector on the rear panel.

● Master Time

Specify the time when supplying a signal from the ALARM/CONTROL connector.

● Summer Time (Day Light Saving)

Select the way of switching the summer time from the following.

OFF: Does not function.

ON: Applies summer time.

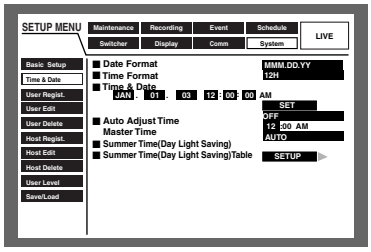
AUTO: Applies summer time in accordance with the setting of the summer time (see next page).

● Summer Time (Day Light Saving) Table

Do the following to specify the start time & date and the end time & date of summer time.

[Screenshot 1]

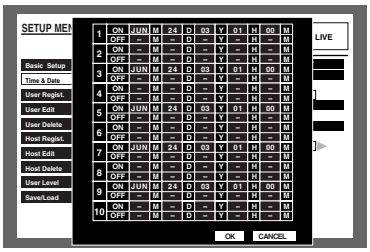
Start operation from the "Time & Date" menu.



1 Move the cursor to "Summer Time (Day Light Saving) Table" using the arrows button (▼ ▲) and press the SET button.

[Screenshot 2]

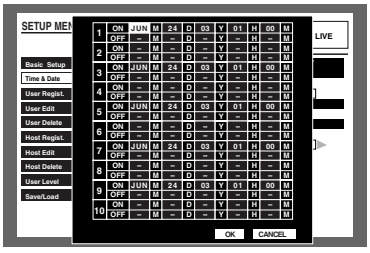
The "Summer Time (Day Light Saving) Table" will be displayed.



2 Move the cursor to enter the ON or OFF time (year, month, date) for summer time using the arrows button.

[Screenshot 3]

The cursor will move to the selected cell for entry of the ON or OFF time for summer time.



3 Rotate the jog dial to enter the ON or OFF time (year, month, date) for summer time.

4 Move the cursor to "OK" and press the SET button.
→ The ON and OFF time for summer time will be applied and the "Summer Time (Day Light Saving) Table" will be closed.

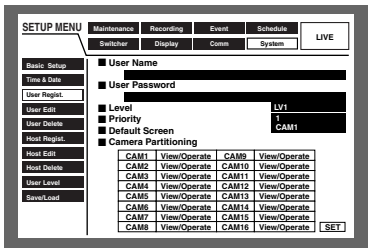
Notes:

- When you move the cursor to "CANCEL" in step 4 and press the SET button, the setting will be canceled and the "Summer Time (Day Light Saving) Table" will be closed.
- The settings for summer time will not be applied until the SET button is pressed after moving the cursor to "OK" in the step 4.

③ [User Registration] Registration of user who operates this unit

Register user information such as user name and password.

After filling out the user information, move the cursor to "SET" at the lower right of the menu and press the SET button to complete registration.



● User Name

Enter 4-14 alphanumeric characters for a user name.
The same method is used to enter, insert and delete characters as for attaching text information to images. Refer to page 54.

● Password

Enter 4-8 alphanumeric characters for password.
The same method is used to enter, insert and delete characters as for attaching text information to images. Refer to page 54.

Important:

- Set unique password, not something that would be easily guessed by a third person. Password also should be memorable.
- Password of an administrator should be changed periodically in order to enhance the security.

● Level

Select a user level from the following.
Setting of operable functions in each level is described in "User Level" (Refer to page 124).
LV1/LV2/LV3

● Priority

Assign priority (1 (lowest) to 16 (highest)) to users.

● Default Screen

Select a camera image to be displayed during the login procedure from the following.

CAM1 - 16: Displays an image from the selected camera channel.

QUAD1 - 4: Displays images from the camera channels 1 - 4 on a 4-split screen.

QUAD5 - 8: Displays images from the camera channels 5 - 8 on a 4-split screen.

QUAD9 - 12: Displays images from the camera channels 9 - 12 on a 4-split screen.

QUAD13 - 16: Displays images from the camera channels 13 - 16 on a 4-split screen.

7 SCREEN: Displays images from the camera channels 1 - 7 on a 7-split screen.

9 SCREEN 1 - 9: Displays images from the camera channels 1 - 9 on a 9-split screen.

9 SCREEN 10 - 16 (only for the WJ-HD316): Displays images from the camera channels 10 - 16 on a 9-split screen.

10 SCREEN (only for the WJ-HD316): Displays images from the camera channels 1 - 10 on a 10-split screen.

13 SCREEN (only for the WJ-HD316): Displays images from the camera channels 1 - 13 on a 13-split screen.

16 SCREEN (only for the WJ-HD316): Displays images from the camera channels 1 - 16 on a 16-split screen.

SEQ: Images will be displayed in the sequential display.

● Camera Partitioning

Select a controllable range for each camera channel from the following.

View/Operate: Displaying live images and operating camera are possible.

View: Displaying live images is possible but cameras cannot be operated.

--: Both displaying live images and operating the camera are impossible.

④ [User Edit] Correction of registered user information

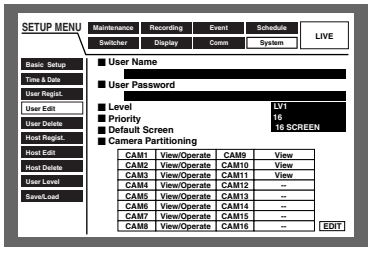
It is possible to edit registered user information.

Move the cursor to "User Name" and rotate the jog dial to select the user name.

Registered information will be displayed.

Editing can be performed in the same way as registration. (Refer to page 122.)

Move the cursor to "EDIT" at the lower right on the menu and press the SET button to complete editing.

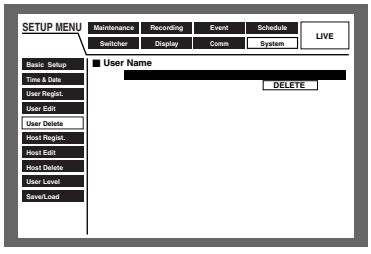


⑤ [User Delete] Deletion of registered user

It is possible to delete a registered user.

Move the cursor to "User Name" and rotate the jog dial to select the user name. Move the cursor to "DELETE" and press the SET button.

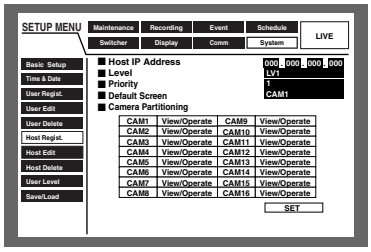
The selected user will be deleted.



⑥ [Host Registration] Registration of PC (host) accessible to this unit

Register host information for the PC that accesses the unit via a network such as a LAN.

Move the cursor to "SET" at the lower right on the menu and press the SET button to complete registration.



● Host IP Address

Enter the IP address. Move the cursor to "Host IP Address" and rotate the jog dial to enter the IP address. For this unit, enter 4 units from the decimal numbers (0-254).

Notes:

- Entering "*" validates all numbers.
- It is impossible to register "0.0.0.0".

● Level

Select a user level from the following.

Setting of operable functions for each level is described in "User Level" (Refer to page 124).

LV1/LV2/LV3

● Priority

Assign priority (1 (lowest) to 16 (highest)) to hosts.

● Default Screen

Select a startup display to be displayed after login from the following.

CAM 1-16 (for the WJ-HD316)/CAM 1-9 (for the WJ-HD309): Displays live images from the selected camera channel on a single screen.

QUAD 1-4: Displays live images from the camera channels 1 - 4 on a 4-split screen.

QUAD 5-8: Displays live images from the camera channels 5 - 8 on a 4-split screen.

QUAD 9-12 (for the WJ-HD316)/CAM 9 (for the WJ-HD309): Displays live images from the camera channels 9 - 12 on a 4-split screen. (When the WJ-HD309 is used, live images from only camera channel 9 will be displayed on the upper left screen of a 4-split screen.)

QUAD 13-16 (only for the WJ-HD316): Displays live images from the camera channels 13 - 16 on a 4-split screen.

9 SCREEN 1-9: Displays images from the camera channels 1 - 9 on a 9-split screen.

9 SCREEN 10-16 (only for the WJ-HD316): Displays images from the camera channels 10 - 16 on a 9-split screen.

16 SCREEN (only for the WJ-HD316): Displays images on a 16-split screen.

SEQ: Images will be displayed in the sequential display.

● Camera Partitioning

Select a controllable range for each camera channel from the following.

View/Operate: Displaying live images and operating camera are possible.

View: Displaying live images is possible but cameras cannot be operated.

--: Both displaying live images and operating camera are impossible.

⑦ [Host Edit] Correction of registered host information

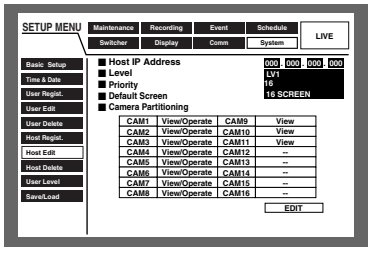
It is possible to edit registered host information.

Move the cursor to "Host IP Address" and rotate the jog dial to select the host IP address.

Registered information will be displayed.

Editing can be performed in the same way as registration. (Refer to page 123.)

Move the cursor to "EDIT" at the lower right on the menu and press the SET button to complete editing.

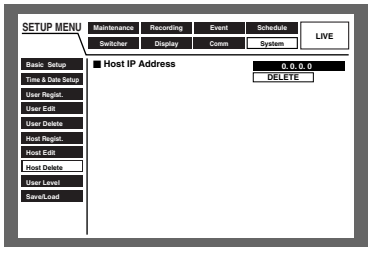


⑧ [Host Delete] Deletion of registered host

It is possible to delete a registered host.

Move the cursor to "Host Delete" and rotate the jog dial to select the host. Move the cursor to "DELETE" and press the SET button.

The selected host will be deleted.



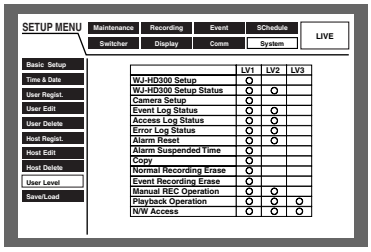
⑨ [User Level] Setting of operation level

Set operable functions at each user level (LV 1/LV 2/LV 3).

Rotate the jog dial to display "○" to enable operation.

Leave it blank to disable operation.

Refer to the table below for each function.



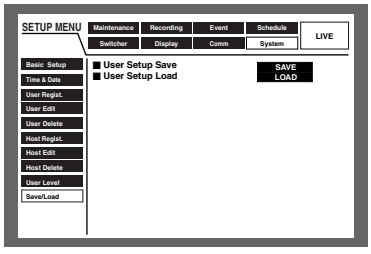
● Functions that can be enabled/disabled

The following functions can be enabled/disabled according to the user level.

Function	Description
WJ-HD300 Setup	The SETUP MENU is displayed and the settings can be performed.
WJ-HD300 Setup Status	Only the SETUP MENU can be displayed. The settings cannot be performed.
Camera Setup	The setting menu of the camera is displayed and the settings can be performed.
Event Log Status	The SETUP MENU is displayed and you can refer to the event log. (Refer to page 95.) You also can refer to the network log. Refer to the Network Operating Instructions (PDF) for further information.
Error Log Status	The SETUP MENU is displayed and you can refer to the error log. (Refer to page 95.)
Access Log Status	The SETUP MENU is displayed and you can refer to the access log. (Refer to page 96.)
Alarm Reset	An event operation can be canceled. (Refer to page 47.)
Alarm Suspend	An event operation can be suppressed. (Refer to page 47.)
Copy	A recorded image can be manually copied. (Refer to page 48.)
Normal Recording Erase	Image data in the normal recording area of the hard disk can be manually deleted.
Event Recording Erase	Image data in the event recording area of the hard disk can be manually deleted.
Manual REC Operation	Manual recording can be started and stopped.
Playback Operation	A recorded image can be played.
N/W Access	This unit can be logged into from a PC via a network.

⑩ [Save/Load] Saving and loading of settings of the SETUP MENU

It is possible to save the settings of the SETUP MENU in this unit.
It is also possible to call up saved settings. (Load)
Move the cursor to "SAVE" or "LOAD" and press the SET button.



DISPLAY SETUP MENU OF CAMERA

For operating the camera connected to this unit, it is necessary to set the camera function in advance.
Setup of camera function can be performed on the setup menu of the connected camera.
You can operate the camera setup menu by calling up it from this unit. Contents of the camera setting menu and operations vary according to the connected cameras. For further information, refer to the operating instructions of the camera.
The following is the descriptions of how to display the camera setting menu.

1 Press the camera selection button for a desired camera channel and the SET button simultaneously.
→The camera setup menu will be displayed.

Use the following buttons on the front panel to perform the settings of the camera setup menu.

To move the cursor	Arrows button (▼ ▲)
To change the selected parameter	Arrows button (◄ ►)
To determine the selected parameter To display the submenu	SET button
To return to the previous menu	SETUP/ESC button

2 Press any one of the PAN/TILT button, the ZOOM/FOCUS button, the IRIS button and the PRESET/AUTO button to complete the camera setting.

Note: To display the special menu of the camera setup menu, press the camera selection button 2 after moving the cursor to SPECIAL on the camera setup menu.
To reset the settings of the camera setup menu to the default settings, press the camera selection button 3 after moving the cursor to CAMERA RESET on the special menu.
Depending on models of the connected cameras, operation method and menu items are different. Refer to the operating instructions of the connected camera.

■ Notes on hard disk

Camera images are recorded into the built-in hard disk of this unit.
There are two hard disks in this unit. In case one of them malfunctions during recording, it is possible to keep recording with the other hard disk (mirror function).
The internal hard disk of this unit is virtually divided into areas 4 to manage the hard disk.

Normal recording area: An area into which images are recorded at times other than an event occurrence such as manual recording.

Event recording area: An area into which images are recorded at an event occurrence.

Copy area: An area into which copy data is stored.

Pre-recording area: An area into which pre-recording images are recorded.

It is possible to check the available disk space for each area on "Disk Info" of "Maintenance" on the SETUP MENU. (Refer to page 93.)
Operations for the hard disk drive such as initialization (formatting) of the hard disk drive in the unit or the optional extension unit, or mirroring, etc., can be performed in the "HDD DISK MENU". (Refer to page 130.)

Note: It is necessary to create either the normal recording area or the event record area. If the normal recording area is not created, manual recording images and schedule recording images are recorded into the event recording area. If the event recording area is not created, event recording images and emergency recording images are recorded into the normal recording area.

■ How to replace the built-in hard disk

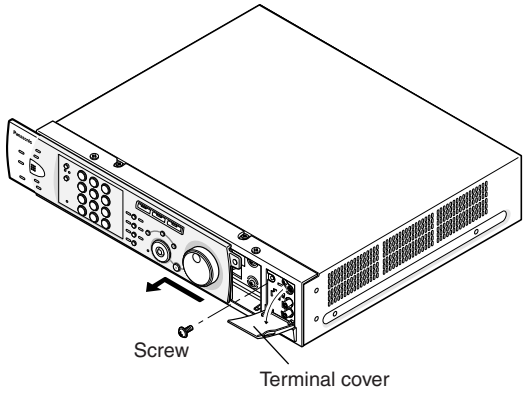
It is possible to replace the hard disk drive regardless of whether the power of the unit is on/off.
However, the procedures for replacement are different.
Refer to the operating instructions for the optional extension unit when replacing the hard disk in the extension unit.

When replacing the hard disk drive after turning off the power of the unit.

1 Turn off the power of the unit and detach the power plug from the outlet.

2 Do the following to replace the hard disk drive.

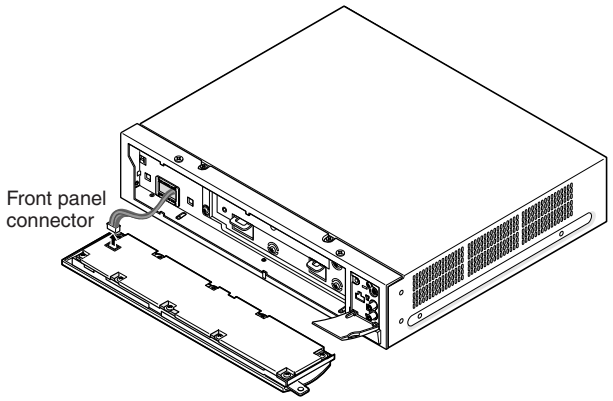
1. Open the connectors cover on the front panel and remove the fixing screws.
   Detach the front panel by sliding it after removing the screws.



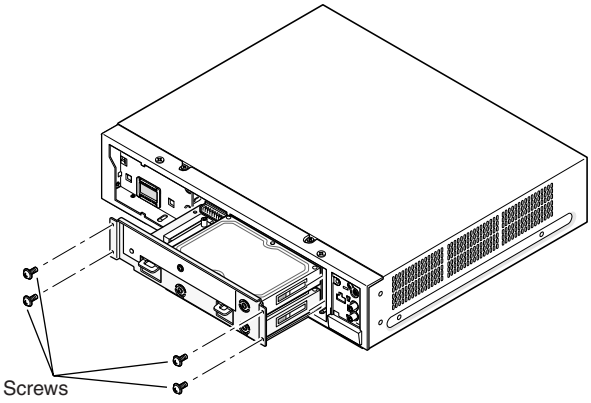
Important:

- Do not detach the cable connecting the unit and the front panel while the HDD status indicators are still lit or until 30 seconds have passed since the HDD status indicators went off.
- Protect the hard disk drives from static electricity.
- Do not stack them, or keep them upright.
- Do not use an electric screwdriver to fix them. (Tightening torque: Approx. 0.49 N · m (5 kgf · cm))
- Avoid rapid changes in the temperature/humidity to prevent condensation. (Acceptable change: within 15 °C/h (59 °F/h))
- Set all the hard disk drives as master using the jumper pin.

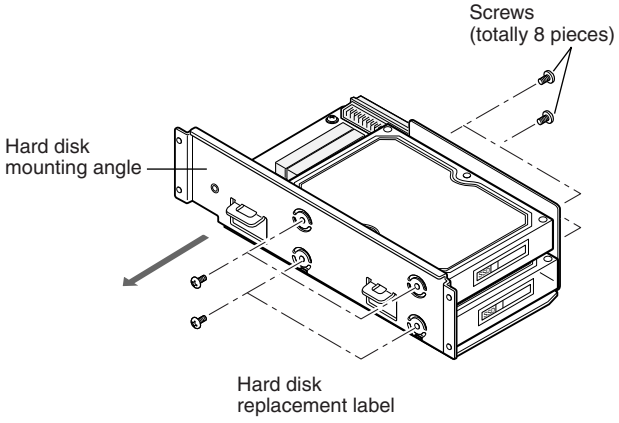
2. Remove the cable from the front panel.



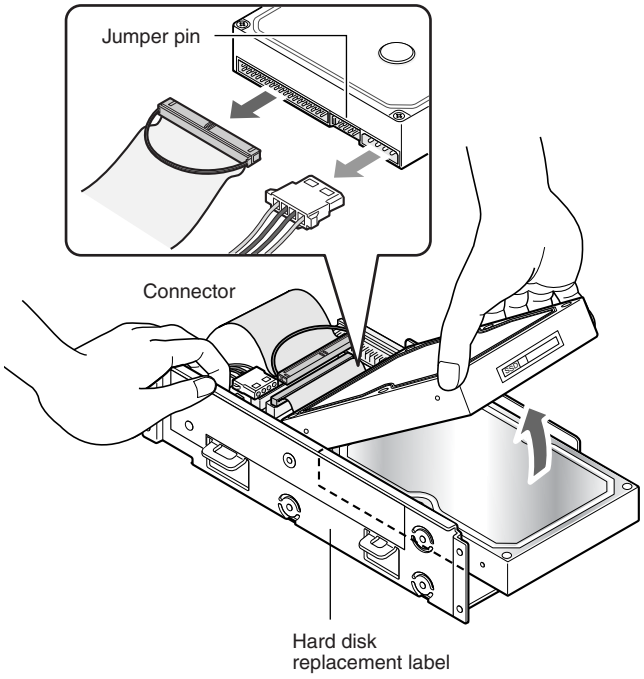
3. Remove the screws fixing the mounting unit, and then pull the mounting bracket toward you.



4. Remove the screws fixing the hard disk drive.
   First, remove the four screws fixing the upper side of the hard disk drive while holding the bottom side of the hard disk drive to prevent the hard disk from falling. Then, remove the four screws fixing the lower side of the hard disk drive.



5. Remove the connector from the hard disk drive first, and then remove the hard disk drive from the hard disk mounting bracket.



6. Install the new hard disk drive in the reverse order of detaching the hard disk drive.

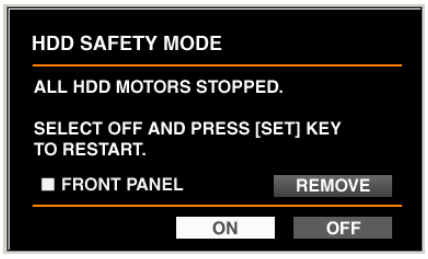
Important:

- When installing, confirm that there are no dust around the connectors. Adhesion of dust may cause malfunction.
- Set the hard disk as master using the jumper pin.

3 After replacing the hard disk drive, insert the power plug into the outlet and turn the power of the unit.
→ The "HDD DISK MENU" will be displayed automatically after the restart.

When replacing the hard disk drive without turning off the power of the unit.

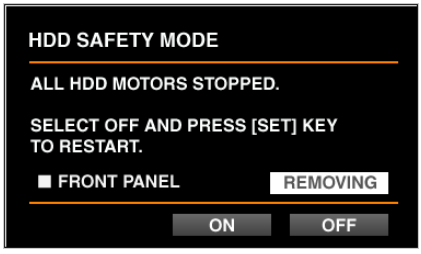
1 Close the SETUP MENU after selecting "ON" for "HDD Safety Mode" of "Disk Info" on the "Maintenance" menu.
→ The HDD SAFETY MODE window will be displayed.



2 The procedures are different between the replacement of the hard disk of the unit and the replacement of the hard disk of the optional extension unit.

When replacing the built-in hard disk of the unit

Move the cursor to "REMOVE" using the arrows button and press the SET button.
The "REMOVE" indication will change to "REMOVING".
The power supply to the front panel will be cut and the unit will be unable to operate with the front panel.



Detach the cable from the front panel and start replacing the built-in hard disk.
Start from step 2 on page 127 to replace the built-in hard disk.

Important:

Detach the cable from the front panel after confirming that "REMOVING" is displayed. Otherwise, it may cause malfunction.

The "REMOVING" indication will return to "REMOVE" by attaching the cable to the front panel. The power will be supplied to the front panel and the unit will be enabled to operate with the front panel.

● When replacing the built-in hard disk of the extension unit

With displaying the HDD SAFETY MODE window, start replacing the built-in hard disk of the optional extension unit.
Refer to the operating instructions of the optional extension unit for the descriptions of how to replace the hard disk.

3 After completing the replacement of the hard disk, move the cursor to "OFF" using the arrows button and press the SET button.
→ The unit will restart and the HDD DISK MENU will be displayed automatically.

4 Perform the settings for the disk according to your needs. Refer to page 132 for further information.

■ About the HDD DISK MENU

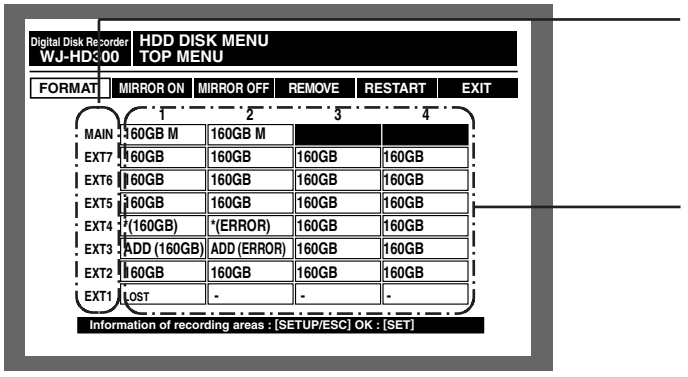
The operations regarding the hard disk can be performed by displaying the "HDD DISK MENU" on monitor 2.
The "HDD DISK MENU" will be displayed when the SET button is pressed while displaying the system check complete window.
The "HDD DISK MENU" will also be displayed automatically after replacing or removing the hard disk.

The following operations can be performed on the "HDD DISK MENU".

Setting item	Description	Page
FORMAT	Formats (initializes) the hard disk. It can also change the setting values for the recording area respectively. Mirroring can also be started on this menu.	132
MIRROR ON	Recovers the mirrored hard disk.	137
MIRROR OFF	Cancels mirroring.	137
REMOVE	Removes the hard disk drive from the system logically.	138
RESTART	Restarts this unit.	–
EXIT	Closes the "HDD DISK MENU".	–

■ Display of the HDD DISK MENU

Information of the hard disk drive of the unit or the optional extension unit will be displayed on the "HDD DISK MENU".



Main unit/optional extension unit

Information about hard disk located in the main unit and optional extension unit

160 GB: Indicates the hard disk capacity (disk existed when last started up)

160 GB M: Indicates the hard disk capacity (mirrored disk existed when last started up)

ADD (160 GB): Indicates that this hard disk is newly mounted at this startup, but that it was not mounted last time. Those parenthesized numbers indicate the capacity of the hard disk.

ADD (ERROR): Indicates that this hard disk is newly mounted at this startup, but that it was not mounted last time. Then, an error is detected on the hard disk.

*** (160 GB):** Indicates that a different hard disk from the one that existed at the last startup is mounted. Those parenthesized numbers indicate the capacity of the hard disk.

*** (ERROR):** Indicates that a different hard disk from the one that existed at the last startup is mounted, and an error has been detected on the hard disk.

LOST: Indicates that a position where a hard disk was mounted at the last startup has no hard disk.

–: Indicates that a hard disk is not mounted this time nor at the last startup.

ERROR: Indicates that the hard disk has failed to be initialized.

Important:

- It is impossible to operate the unit when there is a hard disk with indications of * (capacity), * (ERROR), LOST or ERROR. In this case, remove the relevant hard disk. (Refer to page 138.)
- Hard disks with ADD (capacity) indication are not initialized yet.
  First, initialize them. It is impossible to record images on it or to use it as a copy destination without initialization.

Note: The displayed available disk space on this menu will not include the space required for data management. Therefore, the understated available disk space will be displayed.
It is possible to display information about the recording area (allocated disk size for normal recording area, event recording area, copy area) by pressing the SETUP/ESC button while displaying the "TOP MENU" of the "HDD DISK MENU".

■ RAID 5 Function of the Extension Unit

Summary of the RAID 5 function (Redundant Arrays for Independent Disks, independent data disks with distributed parity blocks)

It is possible to use the RAID 5 function with an optional extension unit.
RAID level 5 regards 3 or more drives as one drive, and it is possible to read data by attaching error correction data even though one of the drives is broken automatically. (It is impossible to read data if 2 or more drives are broken.)
RAID level 5 requires a minimum of 3 drives to implement.
When using the RAID function, logical disk size of the extension unit will be as below.
Logical disk size = Smallest size of the disk among the disks in the extension unit x (Number of the disks in the extension unit - 1)

Important:

- When connecting two extension units or more with this unit, it is impossible to connect the extension unit with the RAID 5 function and the one without the RAID 5 function at the same time.
- When the RAID 5 function is used, it is impossible to use two hard disks in this unit. The recorded pictures in those disks will not be deleted.

● Setup/cancel the RAID 5 function

Do the following to set or cancel the RAID 5 function with an optional extension unit.
Refer to the operating instruction of the extension unit for further information.

1. Make sure that the power of this unit and all of the extension units to be connected are OFF.

2. To set the RAID 5 function, set the mode switch of the extension unit to "RAID 5".
   To cancel the RAID 5 function, set the mode switch of the extension unit to "SINGLE".

3. Make sure that the HDD POWER switch of the extension unit is "ON".

4. Turn the power of the extension unit on.

5. Turn the power of this unit on.
   → The "HDD DISK MENU" will be displayed automatically after the system check when the hard disk configuration has been changed such as when an extension unit is newly connected.

Important:

- When the RAID 5 function is set or canceled, all data on each hard disk of the extension unit will be deleted.
- When turning the power on, turn the power of the extension unit first, and then turn the power of this unit on. Otherwise, the extension unit may not work correctly.

■ Formatting (Initialization) the Hard Disk

It is necessary to initialize the hard disk in the following cases.

- When replacing the hard disk of this unit
- When operating the unit for the first time after connecting the optional extension unit to this unit

Important:

When the hard disk is formatted (initialized), all of the recorded images will be deleted.

● Formatting (initialization) all hard disks (unit)

All hard disks including the built-in hard disks and the hard disks in the extension units will be initialized. All units will be initialized when the RAID 5 function is set.

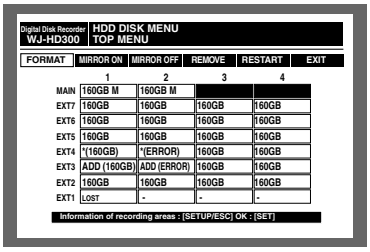
1 Turn on the power of any peripheral devices such as extension unit connected to this unit.

2 Turn on the power of this unit and press the SET button after completing the system check.

Note: When the hard disk is replaced or removed, the "TOP MENU" of the "HDD DISK MENU" will be automatically displayed.

[Screenshot 1]

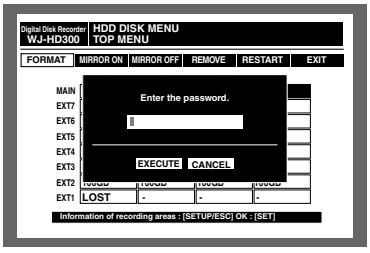
The "TOP MENU" of the "HDD DISK MENU" will be displayed.



3 Move the cursor to "FORMAT" using the arrows button (◄ ►) and press the SET button.

[Screenshot 2]

The password entry window will be displayed.



4 Enter the password for an administrator by rotating the jog dial.

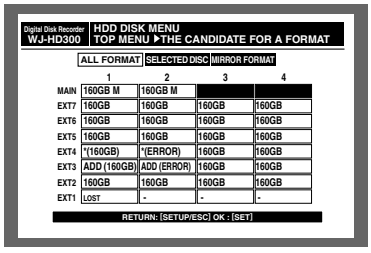
The camera selection buttons ([1] - [10/0] for the WJ-HD316, [1] - [9], [0] for the WJ-HD309) are available to enter numbers for password.

The same method is used to enter, insert and delete characters as for attaching text information to images. Refer to page 54.

5 Move the cursor to "EXECUTE" using the arrows button (▼ ▲) and press the SET button.

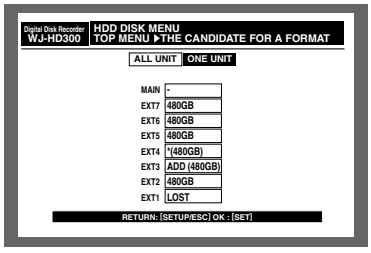
[Screenshot 3]

The "THE CANDIDATE FOR A FORMAT" menu will be displayed.



6 Move the cursor to "ALL UNITS" using the arrows button (◄ ►) and press the SET button.

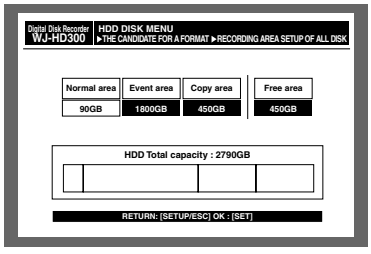
Select "ALL UNITS" when using the RAID 5 function.



<Screen displayed when using the RAID 5 function>

[Screenshot 4]

The "RECORDING AREA SETUP OF ALL DISKS" will be displayed.



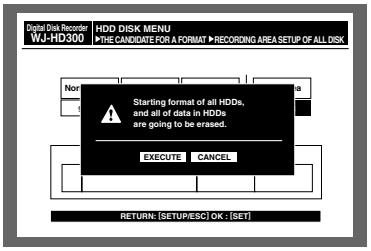
7 Select a recording area using the arrows button (◄ ►) and rotate the jog dial to set the capacity for the selected recording area.

Repeat this operation to set the capacity for the other recording areas.

8 Press the SET button after setting.

[Screenshot 5]

The confirmation dialog window will be displayed.


Digital Disk Recorder
WJ-HD300
HDD DISK MENU
▶THE CANDIDATE FOR A FORMAT ▶RECORDING AREA SETUP OF ALL DISK
Starting format of all HDDs, and all of data in HDDs are going to be erased.
EXECUTE
CANCEL
RETURN: [SETUP/ESC] OK : [SET]

9 Move the cursor to "EXECUTE" using the arrows button (◄ ►) and press the SET button.
→ Formatting will start and the format result dialog window will be displayed. The "TOP MENU" of the "HDD DISK MENU" will be displayed automatically after displaying the format result dialog window.

● Formatting (initialization) the selected hard disk (unit)

Do the following to format the selected hard disk (the selected unit when using the RAID 5 function).

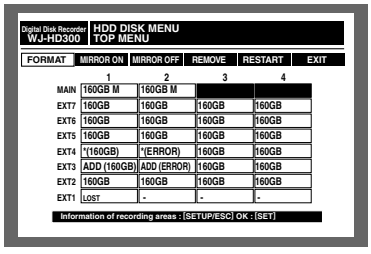
1 Turn on the power of any peripheral devices such as an extension unit connected to this unit.

2 Turn on the power of this unit.
The image saying the system check has been completed will be displayed.
Press the SET button after the image is displayed.

Note: When the hard disk is replaced or removed, the "TOP MENU" of the "HDD DISK MENU" will be displayed automatically.

[Screenshot 1]

The "TOP MENU" of the "HDD DISK MENU" will be displayed.

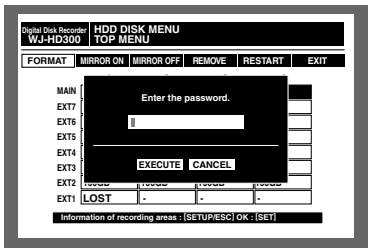


	1	2	3	4
MAIN	160GB M	160GB M		
EXT7	160GB	160GB	160GB	160GB
EXT6	160GB	160GB	160GB	160GB
EXT5	160GB	160GB	160GB	160GB
EXT4	*(160GB)	*(ERROR)	160GB	160GB
EXT3	ADD (160GB)	ADD (ERROR)	160GB	160GB
EXT2	160GB	160GB	160GB	160GB
EXT1	LOST	-	-	-

3 Move the cursor to "FORMAT" using the arrows button (◄ ►) and press the SET button.

[Screenshot 2]

The password entry window will be displayed.

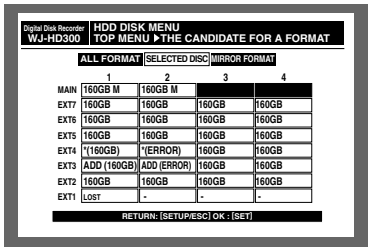


4 Rotate the jog dial to enter the password for an administrator.
The camera selection buttons ([1] - [10/0] for the WJ-HD316, [1] - [9], [0] for the WJ-HD309) are available to enter numbers for password.
The same method is used to enter, insert and delete characters as for attaching text information to images. Refer to page 54.

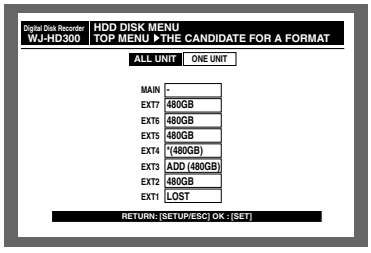
5 Move the cursor to "OK" using the arrows button (▼ ▲) and press the SET button.

[Screenshot 3]

The "THE CANDIDATE FOR A FORMAT" menu will be displayed.



	1	2	3	4
MAIN	160GB M	160GB M		
EXT7	160GB	160GB	160GB	160GB
EXT6	160GB	160GB	160GB	160GB
EXT5	160GB	160GB	160GB	160GB
EXT4	*(160GB)	*(ERROR)	160GB	160GB
EXT3	ADD (160GB)	ADD (ERROR)	160GB	160GB
EXT2	160GB	160GB	160GB	160GB
EXT1	LOST	-	-	-



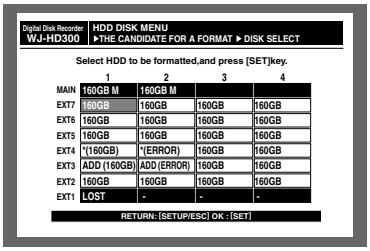
MAIN	-
EXT7	480GB
EXT6	480GB
EXT5	480GB
EXT4	*(480GB)
EXT3	ADD (480GB)
EXT2	480GB
EXT1	LOST

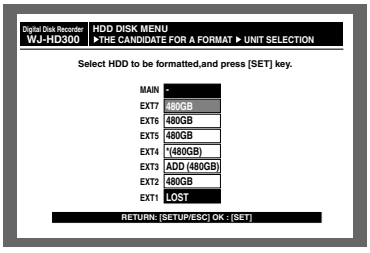
<Screen displayed when using the RAID 5 function>

6 Move the cursor to "SELECTED DISK" using the arrows button (◄ ►) and press the SET button.
When using the RAID 5 function, select "ONE UNIT" on "THE CANDIDATE FOR A FORMAT" menu.

[Screenshot 4]

The "DISK SELECT" menu will be displayed.
When using the RAID 5 function, the "UNIT SELECTION" menu will be displayed.


Digital Disk Recorder
WJ-HD300
HDD DISK MENU
▶THE CANDIDATE FOR A FORMAT ▶ DISK SELECT
Select HDD to be formatted,and press [SET]key.
1 2 3 4
MAIN 160GB M 160GB M
EXT7 160GB 160GB 160GB 160GB
EXT6 160GB 160GB 160GB 160GB
EXT5 160GB 160GB 160GB 160GB
EXT4 *(160GB) *(ERROR) 160GB 160GB
EXT3 ADD (160GB) ADD (ERROR) 160GB 160GB
EXT2 160GB 160GB 160GB 160GB
EXT1 LOST - - -
RETURN: [SETUP/ESC] OK : [SET]

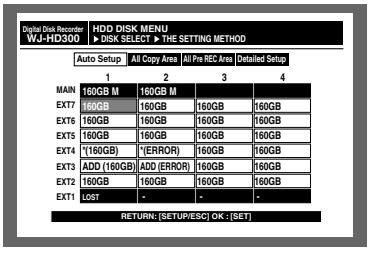


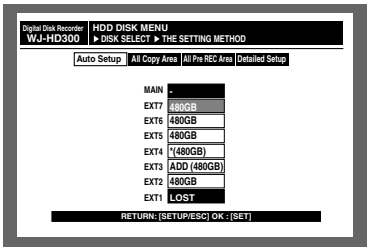
<Screen displayed when using the RAID 5 function>

7 Move the cursor to a desired hard disk (unit) to be formatted (initialized) using the arrows button and press the SET button.

[Screenshot 5]

"THE SETTING METHOD" menu will be displayed.


Digital Disk Recorder
WJ-HD300
HDD DISK MENU
▶ DISK SELECT ▶ THE SETTING METHOD
Auto Setup All Copy Area All Pre REC Area Detailed Setup
1 2 3 4
MAIN 160GB M 160GB M
EXT7 160GB 160GB 160GB 160GB
EXT6 160GB 160GB 160GB 160GB
EXT5 160GB 160GB 160GB 160GB
EXT4 *(160GB) *(ERROR) 160GB 160GB
EXT3 ADD (160GB) ADD (ERROR) 160GB 160GB
EXT2 160GB 160GB 160GB 160GB
EXT1 LOST - - -
RETURN: [SETUP/ESC] OK : [SET]



<Screen displayed when using the RAID 5 function>

8 Select a setting method for each recording area from the following using the arrows button (◄ ►) and press the SET button.

Auto Setup: Assigns the same proportion for each recording area as the proportion of the existing hard disks. (→ step 9)

All Copy Area: Sets the whole selected hard disk (unit) as the copy area. (→ step 9)

All Pre REC Area: Sets the whole selected hard disk (unit) as the pre-recording area. (→ step 10)

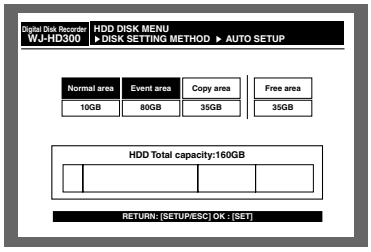
Detailed Setup: Sets each recording area individually. (→ step 11)

Important:

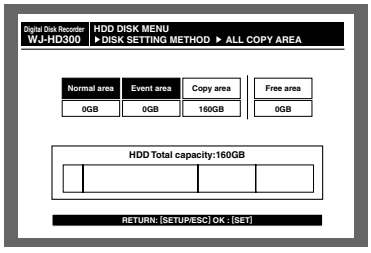
When the built-in hard disk of this unit is selected, "All Pre REC Area" is not available.

[Screenshot 6]

The confirmation menu of the set recording area will be displayed.


Digital Disk Recorder
WJ-HD300
HDD DISK MENU
▶DISK SETTING METHOD ▶ AUTO SETUP
Normal area Event area Copy area Free area
10GB 80GB 35GB 35GB
HDD Total capacity:160GB
RETURN: [SETUP/ESC] OK : [SET]

<Screen displayed when selecting "AUTO SETUP">


Digital Disk Recorder
WJ-HD300
HDD DISK MENU
▶DISK SETTING METHOD ▶ ALL COPY AREA
Normal area Event area Copy area Free area
0GB 0GB 160GB 0GB
HDD Total capacity:160GB
RETURN: [SETUP/ESC] OK : [SET]

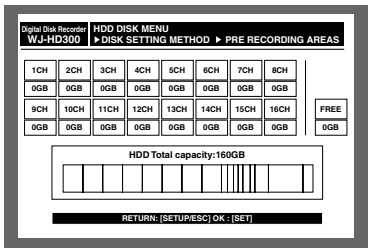
<Screen displayed when selecting "ALL COPY AREA">

9 Confirm the capacity of the set recording area and press the SET button.

→ The confirmation dialog window will be displayed. (→ step 13)

[Screenshot 7]

The "PRE RECORDING AREAS" menu will be displayed.


Digital Disk Recorder
WJ-HD300
HDD DISK MENU
▸DISK SETTING METHOD ▸ PRE RECORDING AREAS
1CH 2CH 3CH 4CH 5CH 6CH 7CH 8CH
0GB 0GB 0GB 0GB 0GB 0GB 0GB 0GB
9CH 10CH 11CH 12CH 13CH 14CH 15CH 16CH
0GB 0GB 0GB 0GB 0GB 0GB 0GB 0GB
FREE
0GB
HDD Total capacity:160GB
RETURN: [SETUP/ESC] OK : [SET]

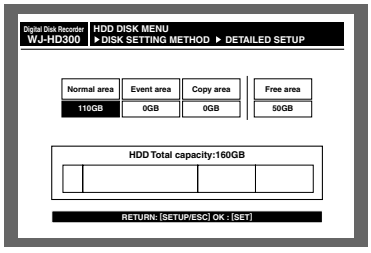
10 Select the camera channel for pre-recording using the arrows button and assign the disk space to the selected pre-recording area by rotating the jog dial.
Repeat this operation to assign disk space to two or more camera channels.
Press the SET button after setting.
→ The confirmation dialog window will be displayed. (→ step 13)

Important:

It is impossible to select the camera channel to which the pre-recording area on another hard disk (unit) is already assigned.

[Screenshot 8]

The "DETAILED SETUP" menu will be displayed.

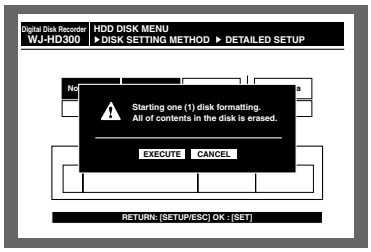


11 Select the recording area using the arrows button and assign the disk space to the selected recording area by rotating the jog dial.
Repeat this operation to assign disk space to two or more recording areas.
Press the SET button after setting.

12 Press the SET button after setting.

[Screenshot 9]

The confirmation dialog window will be displayed.



13 Move the cursor to "EXECUTE" using the arrows button (◄ ►) and press the SET button.
→ Formatting will start and the "TOP MENU" of the "HDD DISK MENU" will be displayed.

■ Setting for Mirroring

Mirroring is the function that records camera images onto two hard disks simultaneously. In case one hard disk has a problem, image data will be stored on the other hard disk. The credibility of disk can be enhanced.
It is recommended to activate the mirroring function for the first use of this unit.
When the mirroring function is activated with remaining recorded images in the hard disk, those recorded images in the hard disk will be deleted.

Important:

- The mirroring function can be configured only by two of the built-in hard disks.
- The size of the two hard disks used for the mirroring function must be the same.
- When using the RAID 5 function, it is impossible to activate the mirroring function.

● Start mirroring

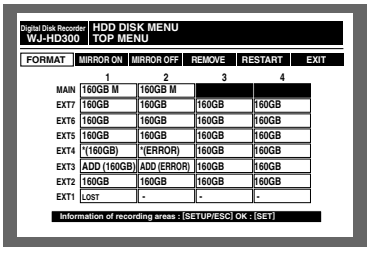
Do the following to activate the mirroring function.

1 Turn on the power of this unit.
The image saying the system check has been completed will be displayed.
Press the SET button after the image is displayed.

Note: When the hard disk is replaced or removed, the "TOP MENU" of the "HDD DISK MENU" will be automatically displayed.

[Screenshot 1]

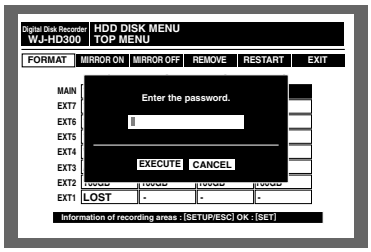
The "TOP MENU" of the "HDD DISK MENU" will be displayed.



2 Move the cursor to "FORMAT" using the arrows button (◄ ►) and press the SET button.

[Screenshot 2]

The password entry window will be displayed.

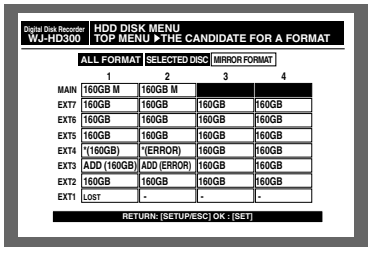


3 Enter the password for an administrator by rotating the jog dial.
The camera selection buttons ([1] - [10/0] for the WJ-HD316, [1] - [9], [0] for the WJ-HD309) are available to enter numbers for the password.
The same method is used to enter, insert and delete characters as for attaching text information to images. Refer to page 54.

4 Move the cursor to "EXECUTE" using the arrows button (▼ ▲) and press the SET button.

[Screenshot 3]

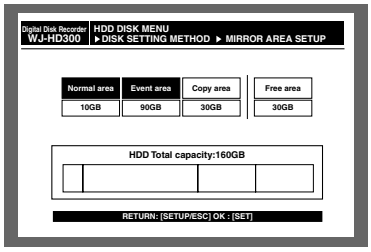
The confirmation dialog window will be displayed.


Digital Disk Recorder WJ-HD300
HDD DISK MENU
TOP MENU ▸THE CANDIDATE FOR A FORMAT
ALL FORMAT
SELECTED DISC
MIRROR FORMAT
1 2 3 4
MAIN 160GB M 160GB M
EXT7 160GB 160GB 160GB 160GB
EXT6 160GB 160GB 160GB 160GB
EXT5 160GB 160GB 160GB 160GB
EXT4 *(160GB) *(ERROR) 160GB 160GB
EXT3 ADD (160GB) ADD (ERROR) 160GB 160GB
EXT2 160GB 160GB 160GB 160GB
EXT1 LOST - - -
RETURN: [SETUP/ESC] OK : [SET]

5 Move the cursor to "MIRROR FORMAT" using the arrows button (▼ ▲) and press the SET button.

[Screenshot 4]

The "MIRROR AREA SETUP" menu will be displayed.



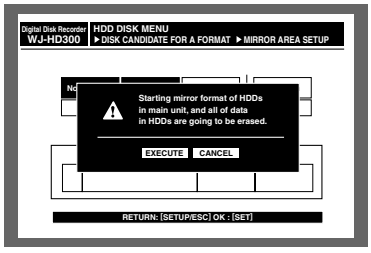
6 Select a recording area using the arrows button and assign the disk space to the selected recording area by rotating the jog dial.
Repeat this operation to assign disk space to two or more recording areas.
Press the SET button after setting.

7 Press the SET button after setting.

[Screenshot 5]

The confirmation dialog window will be displayed.

8 Move the cursor to "EXECUTE" using the arrows button (◄ ►) and press the SET button.
→ Mirroring will start and the "TOP MENU" of the "HDD DISK MENU" will be displayed.


Digital Disk Recorder
WJ-HD300
HDD DISK MENU
▶ DISK CANDIDATE FOR A FORMAT ▶ MIRROR AREA SETUP
Starting mirror format of HDDs in main unit, and all of data in HDDs are going to be erased.
EXECUTE
CANCEL
RETURN: [SETUP/ESC] OK : [SET]

● Cancel mirroring (MIRROR OFF)

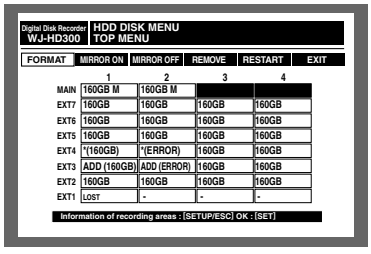
Do the following to cancel the mirroring function.

1 Turn on the power of this unit.
The image saying the system check has been completed will be displayed.
Press the SET button after the image is displayed.

Note: When the hard disk is replaced or removed, the "TOP MENU" of the "HDD DISK MENU" will be automatically displayed.

[Screenshot 1]

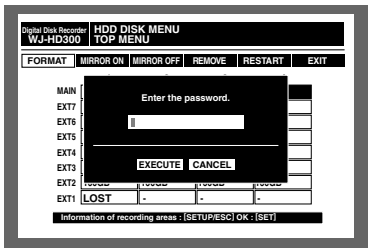
The "TOP MENU" of the "HDD DISK MENU" will be displayed.



2 Move the cursor to "MIRROR OFF" using the arrows button (◄ ►) and press the SET button.

[Screenshot 2]

The password entry window will be displayed.

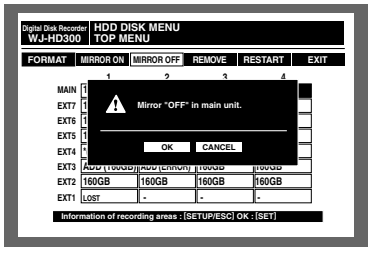


3 Enter the password for an administrator by rotating the jog dial.
The camera selection buttons ([1] - [10/0] for the WJ-HD316, [1] - [9], [0] for the WJ-HD309) are available to enter numbers for password.
The same method is used to enter, insert and delete characters as for attaching text information to images. Refer to page 54.

4 Move the cursor to "EXECUTE" using the arrows button (▼ ▲) and press the SET button.

[Screenshot 3]

The confirmation dialog window will be displayed.



5 Move the cursor to "OK" using the arrows button (◄ ►) and press the SET button.
→ Mirroring will be canceled.

Note: One of the two hard disks involved in mirroring will be indicated as "* (capacity)" on the "TOP MENU" of the "HDD DISK MENU" after canceling the mirroring function.

● Hard disk recovery (MIRROR ON)

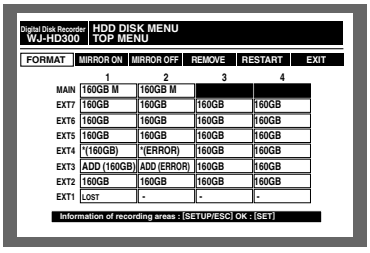
Do the following to recover the hard disk when one of the hard disks involved in mirroring is damaged while mirroring, or when one of the hard disks is replaced.

1 Turn on the power of this unit.
The image saying the system check has been completed will be displayed.
Press the SET button after the image is displayed.

Note: When the hard disk is replaced or removed, the "TOP MENU" of the "HDD DISK MENU" will be automatically displayed.

[Screenshot 1]

The "TOP MENU" of the "HDD DISK MENU" will be displayed.

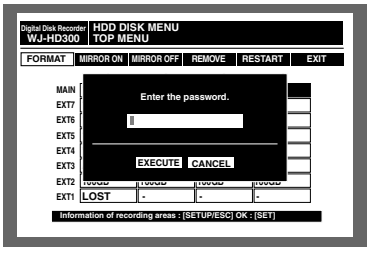


2 Move the cursor to "MIRROR ON" using the arrows button (◄ ►) and press the SET button.

Note: When it is impossible to recover the hard disk (mirror on) such in case that the hard disk size to be recovered is too small, it is impossible to select "MIRROR ON".

[Screenshot 2]

The password entry window will be displayed.

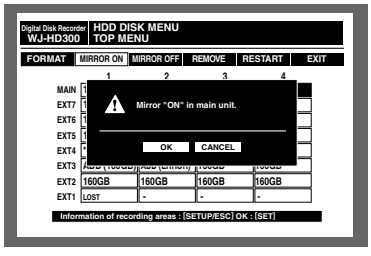


3 Enter the password for an administrator by rotating the jog dial.
The camera selection buttons ([1] - [10/0] for the WJ-HD316, [1] - [9], [0] for the WJ-HD309) are available to enter numbers for password.
The same method is used to enter, insert and delete characters as for attaching text information to images. Refer to page 55.

4 Move the cursor to "EXECUTE" using the arrows button (▼ ▲) and press the SET button.

[Screenshot 3]

The confirmation dialog window will be displayed.



5 Move the cursor to "OK" using the arrows button (◄ ►) and press the SET button.
→ Recovery of the hard disk will start when the unit is in operation after the "HDD DISK MENU" is closed.

● Remove the Hard Disk Logically and Reconfigure it (REMOVE)

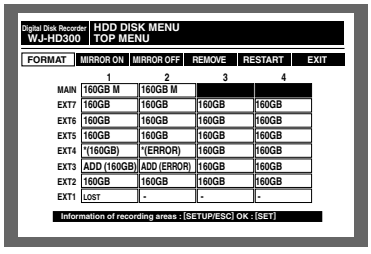
It is possible to remove the hard disk logically (unmount) without uninstalling (detaching) the hard disk physically. It is recommended to remove the hard disk logically when the hard disk of the unit or an extension unit is having trouble (hard disk indicated with "*", "LOST" or "ERROR") and it is necessary to remove it temporarily but not to stop operation.
Do the following to remove the hard disk logically.

1 Turn on the power of this unit.
The image saying the system check has been completed will be displayed.
Press the SET button after the image is displayed.

Note: When the hard disk is replaced or removed, the "TOP MENU" of the "HDD DISK MENU" will be automatically displayed.

[Screenshot 1]

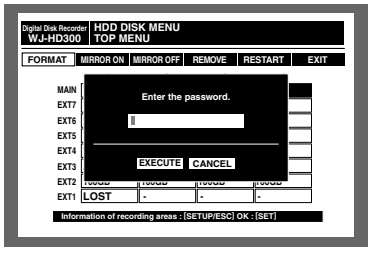
The "TOP MENU" of the "HDD DISK MENU" will be displayed.



2 Move the cursor to "REMOVE" using the arrows button (◄ ►) and press the SET button.

[Screenshot 2]

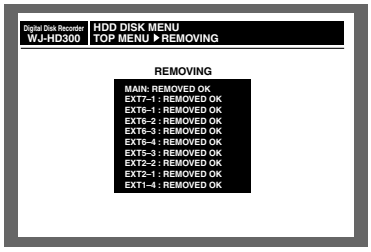
The password entry window will be displayed.



3 Enter the password for an administrator by rotating the jog dial.
The camera selection buttons ([1] - [10/0] for the WJ-HD316, [1] - [9], [0] for the WJ-HD309) are available to enter numbers for password.
The same method is used to enter, insert and delete characters as for attaching text information to images. Refer to page 54.
→ The hard disk will be removed logically and the confirmation dialog window will be displayed.

[Screenshot 3]

The confirmation dialog window will be displayed after logical remove of the hard disk is started.



4 The "TOP MENU" of the "HDD DISK MENU" will be displayed when logical remove has been completed.

SERIAL (RS232C) CONNECTOR COMMAND REFERENCE

■ SERIAL (RS232C) Communication Protocol

With the SERIAL (RS232C) interface, you can control functions of this unit by transferring the specified commands from a personal computer (PC) to this unit.

Notes:

- This unit does not support the communication converted between the SERIAL (RS232C) and USB interface.
- When controlling the unit with the SERIAL (RS232C) interface, the following parameters should be identical between the communication devices.
  The setting is available in "SETUP MENU" – "Comm" – " SERIAL (RS232C) Setting".
  Baud Rate
  Data Bit
  Parity
  Stop Bit

■ Command Format

The following pages detail how to write the commands.

1. The following details how to write the commands

Code	[STX] AD [Unit address of this unit] [Transmission Command] : [p] [ETX]
ASCII	(02H) – (03H)

STX: This shows the data start. STX (ASCII code: 02h) is always prefixed to data. h shows hexadecimal digit.
Transmission command: A command shown in the Command List is designated.
ETX: This shows the data end. ETX (ASCII code: 03h) is always prefixed to data.
The character code is ASCII.

When a command needs parameter, colon (:) is used for dividing the command and parameter. The following is how to write the commands when two or more commands are specified.

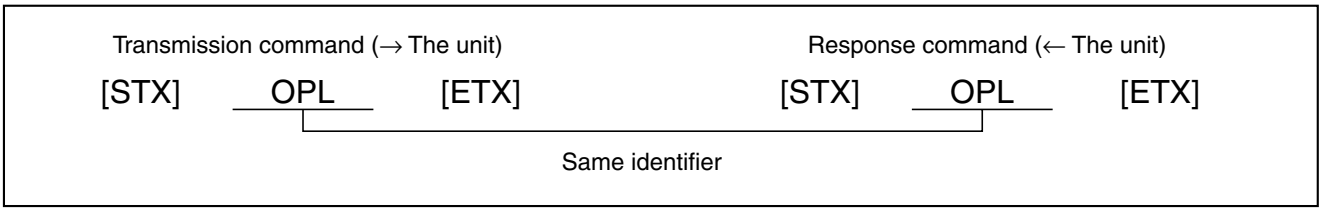
Code	[STX] AD [Unit address of this unit] [Transmission Command] : [p1] : [p2] [ETX]

2. Response Command (from the Unit to the PC)

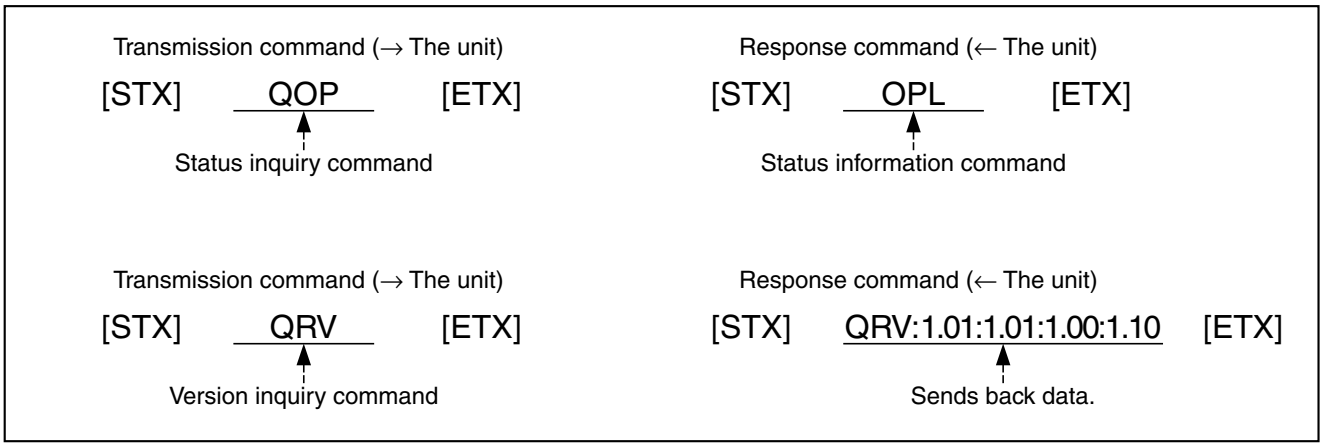
The unit sends back the response command for the transmission command from the PC.

- **When the reception was completed successfully**
  The response command differs between when an ANSWER command (sending back the status or data) is required or when not required.

- **When no ANSWER command is required**
  The unit sends back the same identifier as that in the transmission command, as shown in the figure.



- **When an ANSWER command is required**
  The unit sends back the status or data, as shown in the figure.



- **About ACK code**
  After receiving an command from the PC, the unit sends back the ACK code to the PC in 20 ms or less.
  [ACK] = Reception succeeded (ASCII code: 06H)
  After the ACK code sending back and the command processing has completed, the unit sends back the response command to the PC.

Example:
These are examples for the following operations.
1. Login with the user name of "ADMIN" and with password of "12345".
2. Display images from the camera channel 1 on the monitor 2.
3. Start playback from the point of January 1 2003, 3:00 p.m.
4. Logout

(1) (This unit -> PC) Login
[STX]AD001;OLI:ADMIN[SP] [SP] [SP] [SP] [SP] [SP] [SP] [SP] [SP] [SP] [SP] [SP] [SP] [SP] [SP] [SP] [SP] [SP] [SP] [SP] [SP] [SP] [SP] [SP] [SP] [SP] [SP] [SP] [SP] [SP]:12345[SP] [SP] [SP] [SP] [SP] [SP] [SP] [SP] [SP] [SP] [SP] [SP] [SP] [SP] [SP] [SP] [SP] [SP] [SP] [SP] [SP] [SP] [SP] [SP] [SP] [SP] [SP] [SP] [SP] [SP][ETX]

When receiving the command above, this unit will start the login procession of the user name of "ADMIN".

(2) (This unit -> PC) Response against (1).
[STX]AD001;OLI:1[ETX]

(3) (PC -> This unit) Select the monitor 2
[STX]AD001;OMS:001[ETX]

(4) (This unit -> PC) Response against (3).
[STX]AD001;OLI:1[ETX]

(5) (PC -> This unit) Display images from the camera channel 1.
[STX]AD001;OCS:00001[ETX]

(6) (This unit - > PC) Response against (5).
[STX]AD001;OCS:00002[ETX]

(7) (PC -> This unit) Playback from the designated time point.
[STX]AD001;ZTP:20030101150000[ETX]

When receiving the command above, this unit will start playback from the point of January 1 2003, 3:00 p.m.

(8) (This unit - > PC) Response against (7).
[STX]AD001;ZTP: 200301011500000[ETX]

(9) (PC -> This unit) Logout.
[STX]AD001;OLO [ETX]

When receiving the command above, the user logged in via SERIAL (RS232C) (ADMIN) will logout.

(10) (This unit - > PC) Response against (9).
[STX]AD001;OLO[ETX]

Note: The character code of [STX], [ETX] and [SP] are as follows.
[STX]: 02h
[ETX]: 03h
[SP] (space): 20h

3. Reception Error

The response command differs between the reception error and parameter error.

- **Communication error (Reception error)**
  When the unit cannot properly receive the command due to the communication error, the unit immediately sends back the NACK code to the PC. After clearing the receive buffer, the unit enters the wait state until receiving the following [STX] command.

[NCK]◯ = Reception failed (ASCII code: 15H)

--------- Reason for the communication error
1: Parity error (ASCII code: 31H)
2: Framing error (ASCII code: 33H)
3: Overrun error (ASCII code: 34H)

- **Parameter error**
  When the unit cannot properly process the received command, the unit sends back an error code to the PC. After clearing the receive buffer, the unit enters the wait state until receiving the following [STX] command.

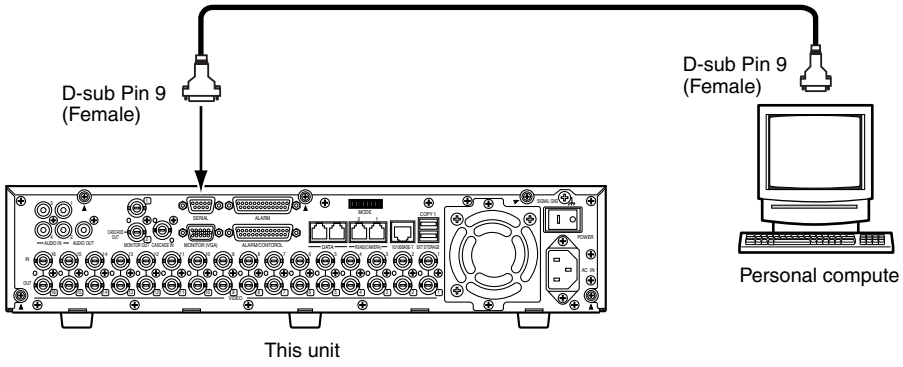
ER◯ [ETX] =Error

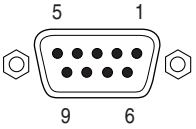
--------- Reason for the error
001: Command invalid (There is no associated command.)
002: Parameter invalid (The number, digit, or range of the command parameters is incorrect.)
003: Command invalid (The unit does not support the operation mode.)
E: Command error (ASCII code: 45H)

- If the unit receives another command during the response, the unit will respond to the command after processing the current response.
- If the unit received the [STX] command again before receiving the [ETX] command, the unit will clear the internal buffer. Then, the unit will process the data following to the [STX] command. (The commands received before the second [STX] command will be canceled.)
- The internal buffer will be cleared when it fills up.*

4. PC Connection Example

RS232C crossing cable is used for connection between the unit and PC. (Refer to the following page for cable specification.)

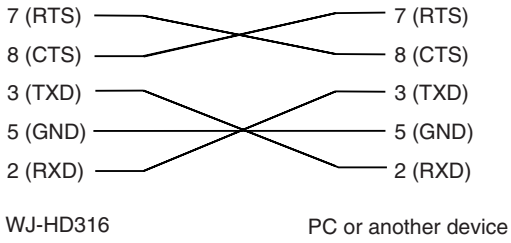




WJ-HD316 Rear View

Pin No.	Signal Name	I/O
1	CD	IN
2	TXD	IN
3	RXD	OUT
4	DTR	OUT
5	SG	–
6	DSR	IN
7	RTS	OUT
8	CTS	IN
9	RI	IN

Cross cable connection example



● Command Table

Basic Operation

Item	Transmission command (ASCII)	Response command (ASCII)	Parameter (ASCII)
Forward a field	OVF	OVF	
Rewind a field	OVR	OVR	
Pause during playback	OPA	OPA	
Play	OPL	OPL	
Manual recording	ORC	ORC	
Manual recording with text	ZMR:nn:ddd···ddd	ZMR:nn	nn=01~99 (Sequence number) ddd···ddd: text (200 bytes or less)
Stop	OSP:n	OSP	n=P: Stops PLAY n=R: Stops REC no parameter stops PLAY and REC
Skip & play forward	OSF:n	OSF	n=0F Normal speed n=1F x2 speed n=2F x5 speed n=3F x10 speed n=4F x20 speed n=5F x50 speed n=6F x100 speed n=0S Normal speed n=1S 1/2 speed
Skip&play reversely	OSR:n	OSR	n=0F Normal speed n=1F x2 speed n=2F x5 speed n=3F x10 speed n=4F x20 speed n=5F x50 speed n=6F x100 speed n=0S Normal speed n=1S 1/2 speed
Record No. Search and playback	ZPR:rrrrrrrrrrrrrrr:mm	ZPR:rrrrrrrrrrrrrrr	rrrrrrrrrrrrrrr Record No.
Time & date search and playback	ZTP:yyyymmddhhnnss	ZTP:yyyymmddhhnnss	yyyymmddhhnnss:Time & date of playback image
Record skip	OSK:dnn	OSK	d=+ Forward – Backward nn=01 Number of skipped records: Fixed
LISTED Playback	ZLT:n	ZLT:n	n=0 OFF n=1 ON
Playback latest image	ZPM	ZPM	
A - B repeat playback	ZRP:n	ZRP:n:yyyymmddhhnnss	n=0 A - B repeat playback OFF n=1 Set repeat start point (A point) n=2 Set repeat end point (B point) yyyymmddhhnnss: Date and time of A/B point
Display COPY SETUP MENU	ZPD:n	ZPD:n	n=0 COPY SETUP MENU OFF n=1 COPY SETUP MENU ON
Display text	ZDT:n	ZDT:n	n=0 Text display OFF n=1 Text display ON
Multi-screen switching	OTC:m	OTC:m	m=0 4-split screen m=1 7-split screen m=2 9-split screen m=3 10-split screen m=4 13-split screen m=5 16-split screen
Monitor selection	OMS:nnnn	OMS:nnnn	nnnn=0001 Select MON 1 nnnn=0002 Select MON 2
Camera selection	OCS:ccccc	OCS:ccccc	ccccc: Camera CH

Item	Transmission command (ASCII)	Response command (ASCII)	Parameter (ASCII)
Electronic zooming	OZM:m	OZM:n	m=0 Electronic zooming OFF m=1 Electronic zooming ON m=> Switch x2 -> x4 m=< Switch x4 -> x2 m=+ Switch Electronic zooming OFF -> x2 -> x4 -> Electronic zooming OFF -> ... m=- Switch x4 -> x2 -> Electronic zooming OFF -> x4 -> ... n=0 Electronic zooming OFF n=2 x2 n=4 x4 term
Start sequence	OQT:01F	OQT:01F:01	
Stop sequence	OQS:0	OQS	
Disk selection	ZDS:k	ZDS:k	k=0 HDD normal/event recording sector k=1 HDD copy sector k=2 Disk connected to COPY 1 k=3 Disk connected to COPY 2)
Marking	ZMP	ZMP	

Alarm Control

Item	Transmission command (ASCII)	Response command (ASCII)	Parameter (ASCII)
Alarm input	OAI:$b_1b_2b_3a_1a_2a_3a_4$	OAI	$b_1b_2b_3$: Head alarm CH information (binary) $a_1a_2a_3a_4$: Alarm CH information (binary)
Alarm input with text	ZAI:$b_1b_2b_3a_1a_2a_3a_4$: nn:ddd···ddd	ZAI:nn	$b_1b_2b_3$: Head alarm CH information (binary) $a_1a_2a_3a_4$: Alarm CH information (binary) nn=01 - 99 (Sequence No) ddd···ddd: text (200 bytes or less)
Alarm reset	OAL;n	OAL	n=0 Alarm all reset n=1 Alarm reset
Alarm suspension	MAD:n	MAD:n	n=0 Alarm suspension OFF n=1 Alarm suspension ON)
Alarm change information (LED indication)	–	ALD:n	n=0 LED OFF n=1 LED ON n=2 LED Blinking
Alarm change information	–	ALM: $b_1b_2b_3a_1a_2a_3a_4$	b1b2b3: Head alarm CH information (binary) a1a2a3a4: Alarm CH information (binary)

Setup Control

Item	Transmission command (ASCII)	Response command (ASCII)	Parameter (ASCII)
Display SETUP MENU	MSU:n	MSU:n	n=0 SETUP MENU OFF n=1 SETUP MENU ON
Move cursor	DCR:n1n2	DCR	n1n2=A1 Right n1n2=C1 Upward n1n2=E1 Left n1n2=G1 Downward n1n2=+1 Increment parameter (+) n1n2=-1 Decrement parameter (–) n1n2=PD Move to virtual menu (SET) n1n2=P- Go back to an older page (BACK) n1n2=PU Move to upper layer (ESC)
Date & Time setup	TSU:yyyymmddhhnn	TSU	yyyymmddhhnn: Date and time
Summer time setup	MST:n	MST	n=0 Standard time n=1 Summer time
Recording mode setup	MRM:n	MRM	n=0 Normal recording mode n=2 Continuous (External timer) recording mode

Login/Logout

Item	Transmission command (ASCII)	Response command (ASCII)	Parameter (ASCII)
Login	OLI:uuu...uuu: ppp···ppp	OLI:n	uuu...uuu: User name (32-byte fixed length) ppp...ppp: Password (32-byte fixed length) n=0 Error in user name/password n=1 Login succeeded n=2 Login failed
Logout	OLO	OLO	

Data Control

Item	Transmission command (ASCII)	Response command (ASCII)	Parameter (ASCII)
Copy by specifying record	ZCR:rrrrrrrrrrrrrrrr:m	ZCR	rrrrrrrrrrrrrrrr: Record No. m=0 Copy to HDD copy sector m=1 Copy to media connected to COPY 1 m=2 Copy to media connected to COPY 2
Copy by specifying date & time	ZCT:$y_1y_1y_1y_1m_1m_1d_1d_1$ $h_1h_1n_1n_1$:$y_2y_2y_2y_2m_2m_2$ $d_2d_2h_2h_2n_2n_2$:s:ccc:m	ZCT	$y_1y_1y_1y_1m_1m_1d_1d_1h_1h_1n_1n_1$: Start date & time of data copy $y_2y_2y_2y_2m_2m_2d_2d_2h_2h_2n_2n_2$: End date & time of data copy s=0 Format to specify the camera CH. Fixed to 0 ccc: Camera CH No. of target for data copy m=0 Copy to HDD copy sector m=1 Copy to media connected to COPY 1 m=2 Copy to media connected to COPY 2
Data copy completed	–	ZEC:$y_1y_1y_1y_1m_1m_1d_1d_1$ $h_1h_1n_1n_1$: $y_2y_2y_2y_2m_2m_2d_2d_2h_2h_2$ n_2n_2:s:ccc:m	$y_1y_1y_1y_1m_1m_1d_1d_1h_1h_1n_1n1$ Start date & time of data copy $y_2y_2y_2y_2m_2m_2d_2d_2h_2h_2n_2n_2$ End date & time of data copy s=0 Format to specify the camera CH. Fixed to 0 ccc: Camera CH No. of target for data copy m=0 Copy to HDD copy sector m=1 Copy to media connected to COPY 1 m=2 Copy to media connected to COPY 2
Cancel data copy	ZDC	ZDC	
Erase log	ZLC:k	ZLC:k	k=1 Event input log k=2 Trouble log k=3 Access log
Log data total number inquiry	ZLQ:k:$y_1y_1y_1y_1m_1m_1d_1d_1$ $h_1h_1n_1n_1$:$y_2y_2y_2y_2m_2m_2$ $d_2d_2h_2h_2n_2n_2$	ZLQ:k:$y_1y_1y_1y_1m_1m_1$ $d_1d_1h_1h_1n_1n_1$ $y_2y_2y_2y_2m_2m_2$ $d_2d_2h_2h_2n_2n_2$:dddddddd	k=0 Record list k=1 Event input log k=2 Trouble log k=3 (Access log) $y_1y_1y_1y_1m_1m_1d_1d_1h_1h_1n_1n_1$: Start date & time of inquiry range $y_2y_2y_2y_2m_2m_2d_2d_2h_2h_2n_2n_2$: End date & time of inquiry range dddddddd: Log data total number
Log readout	ZLR:yyyymmdd hhnn:mmmmmmmm	ZLR:k:<Log Data 1>s1:<Log Data 2>s2:···:<Log Data n>sn	k=1 (Event input log) k=2 (Trouble log) k=3 (Access log) yyyymmddhhnn Start date & time of readout logs mmmmmmmm: Total number of acquired logs (00000000 - 00000050) <Log Data n>: Log data sn: 0-9 Cyclic number
Record list acquisition	ZGR:yyyymmddnn :nnnnnnnn	ZGR<Log Data 1>s1:<Log Data 2>s2:···:<Log Data n>sn	yyyymmddhhnn: Start date & time of readout list mmmmmmmm: Total record number in the acquired list (00000001 - 00000050) <Log Data n>: Log data sn: 0-9 Cyclic number
Text acquisition	ZGT:rrrrrrrrrrrrrrrr	ZGT:rrrrrrrrrrrrrrrr: <TEXT>	rrrrrrrrrrrrrrrr: Record No. <TEXT>: text data
Text writing	ZPT:rrrrrrrrrrrrrrrr: <TEXT>	ZPT:rrrrrrrrrrrrrrrr	rrrrrrrrrrrrrrrr: Record No. <TEXT>: text data 200 bytes or less

Disk End Notification

Item	Transmission command (ASCII)	Response command (ASCII)	Parameter (ASCII)
Disk end auto-notification setting	MDE:n	MDE:n	n=0 (Auto-notification OFF) n=1 (Auto-notification ON)
Disk end auto-notification	HDE:–	HDE:p	p=1 (Normal recording sector) p=2 (Event recording sector) p=3 (Copy sector)

Search Operation

Item	Transmission command (ASCII)	Response command (ASCII)	Parameter (ASCII)
Display search editing area	ZTL:n	ZTL:n	n=0 (Search editing area OFF) n=1 (Recording event search list ON) n=2 (Recording event search thumbnail ON) n=3 (VMD search list ON) n=4 (VMD Search Thumbnail OFF) n=5 (Marking search list ON) n=6 (Marking search thumbnail ON) n=7 (Search playback display ON)

Display Operation

Item	Transmission command (ASCII)	Response command (ASCII)	Parameter (ASCII)
Switch display	DIN:n	DIN	n=+

Inquiry

Item	Transmission command (ASCII)	Response command (ASCII)	Parameter (ASCII)
Additional disk space inquiry	QHR:p	QHR:p:sss	p=1 HDD normal recording sector p=2 HDD event recording sector p=3 HDD copy sector p=4 Disk connected to COPY 1 p=5 Disk connected to COPY 2 sss: Additional disk space (%)
ID request	QID	QID:WJ-HD309 or QID:WJ-HD316	
Interface ID request	QIB	QIB:WJ-HD309 or QIB:WJ-HD316	
Production category request	QIC	QIC:2	
Alarm information request	QLD:0	QLD:n	n=0 (No alarm) n=1 (Alarm end) n=2 (Under alarm operation)
Software version inquiry	QRV	QRV:n.nn	n.nn: Software version
Status inquiry	QSR	QSR:Status 1:Status 2···	Following response commands are sends back for "Status 1:Status 2···" msu:0 Under normal operation msu:1 Under setting oms:0001 Monitor 1 oms:0002 Monitor 2 ocs:ccccc ccccc: Camera number otc:n Multiscreen segment display pattern n=0: 4 segments n=1: 7segments n=2: 9 segments n=3: 10 segments n=4: 13 segments n=5: 16 segments oqt: 01F Sequence activated ozm: 0 Zoom OFF ozm: 2 x2 zoom ozm: 4 x4 zoom mad: 0 Alarm suspension OFF mad: 1 Alarm suspension ON zcd: Cascade activated zqs: 1 CH recording activated:2 CH recording activated···16 CH recording activated Recording status nn=00 (Recording stop) nn=01 (Manual recording activated) nn=02 (Event recording activated) nn=03 (Schedule recording activated) nn=04 (Emergency recording activated)

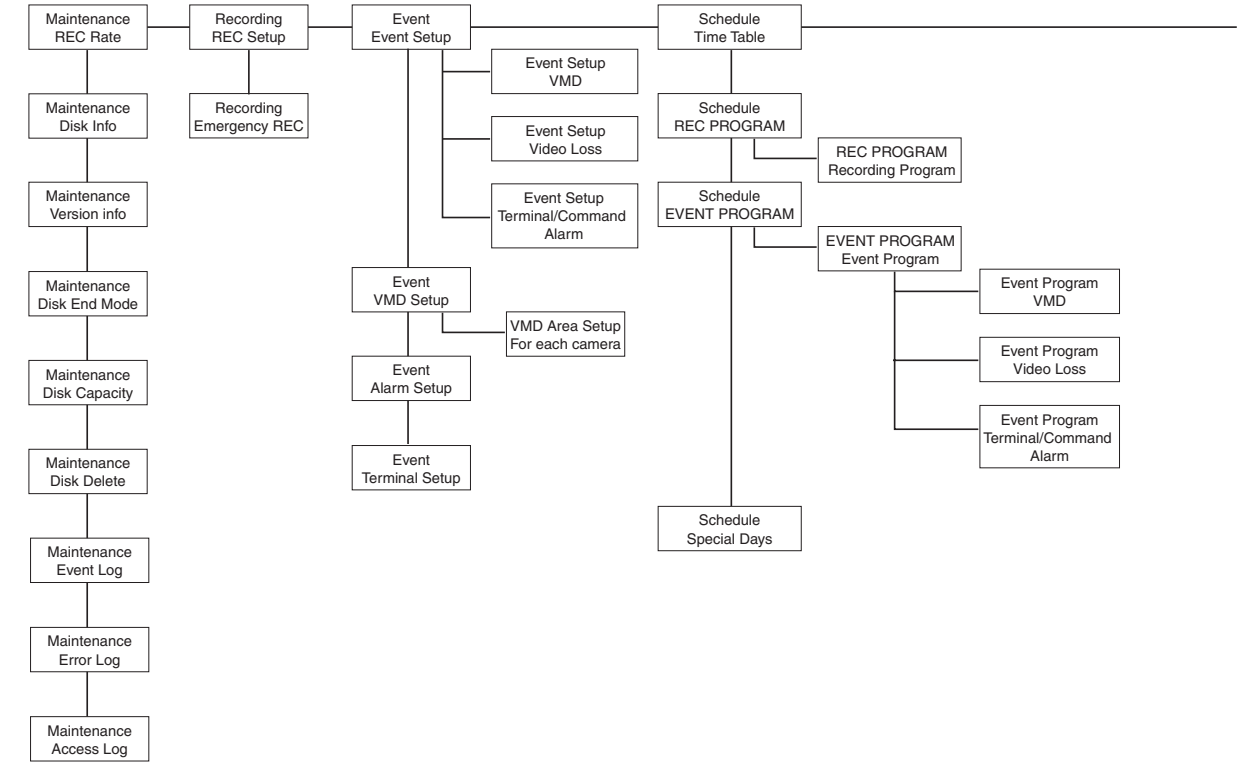
Item	Transmission command (ASCII)	Response command (ASCII)	Parameter (ASCII)
			zqm: Monitor status: camera CH: Playback time Monitor status n=0 Live n=1 Live sequence n=2 Playback n=3 Other statuses Camera CH Playback time: yyyymmddhhnnss ztl:n Search editing area ON n=0 Search editing area OFF n=1 Recording event search list ON n=2 Recording event search thumbnail ON n=3 VMD search list ON n=4 VMD search thumbnail ON n=5 Marking search list ON n=6 Marking search thumbnail ON n=7 Search playback display ON zdt:0 Text display OFF zdt:1 Text display ON
Recording mode inquiry	QRM	QRM:n	n=0 Normal recording mode n=2 Continuous (External timer) recording mode
Monitor status inquiry	ZQM	ZQM:m:$a_1a_2a_3a_4$:yyyymmddhhnnss	m=0 Live m=1 Live sequence m=2 Playback m=3 Other statuses $a_1a_2a_3a_4$: Camera CH information (binary) yyyymmddhhnnss: Playback time
Recording status inquiry	ZQS	ZQS:1 CH recording activated: 2 CH recording activated···16 CH recording activated	Recording status nn=00 (Recording stop) nn=01 (Manual recording activated) nn=02 (Event recording activated) nn=03 (Schedule recording activated) nn=04 (Emergency recording activated)
Record number information	–	ZRN:sss:nn:rrrrrrrrrrrrrrr:nnyyyymmddhhnnss:ccc:x;yyy:t	sss: Unit address nn=Sequence number rrrrrrrrrrrrrrr: Record number yyyymmddhhnnss: Recording event date and time ccc: Camera CH x=0 Manual recording x=1 Schedule recording x=2 VMD recording x=3 Alarm port recording x=4 Command alarm recording x=5 VIDEO LOSS recording x=6 Emergency recording yyy: Event-activated CH t=0 Text included t=1 Text not included nn=Sequence number
Camera SYNC status inquiry	QSY:a1a2a3a4a5:b1b2b3b4b5	QSY:$a_1a_2a_3a_4a_5$ $b_1b_2b_3b_4b_5$:$s_1s_2s_3$···sm	$a_1a_2a_3a_4a_5$ - $b_1b_2b_3b_4b_5$: Range of camera CH to inquire SYNC status $s_1s_2s_3$···sm: SYNC status of each camera (s_m=0: SYNC status not found s_m=1: SYNC status found)

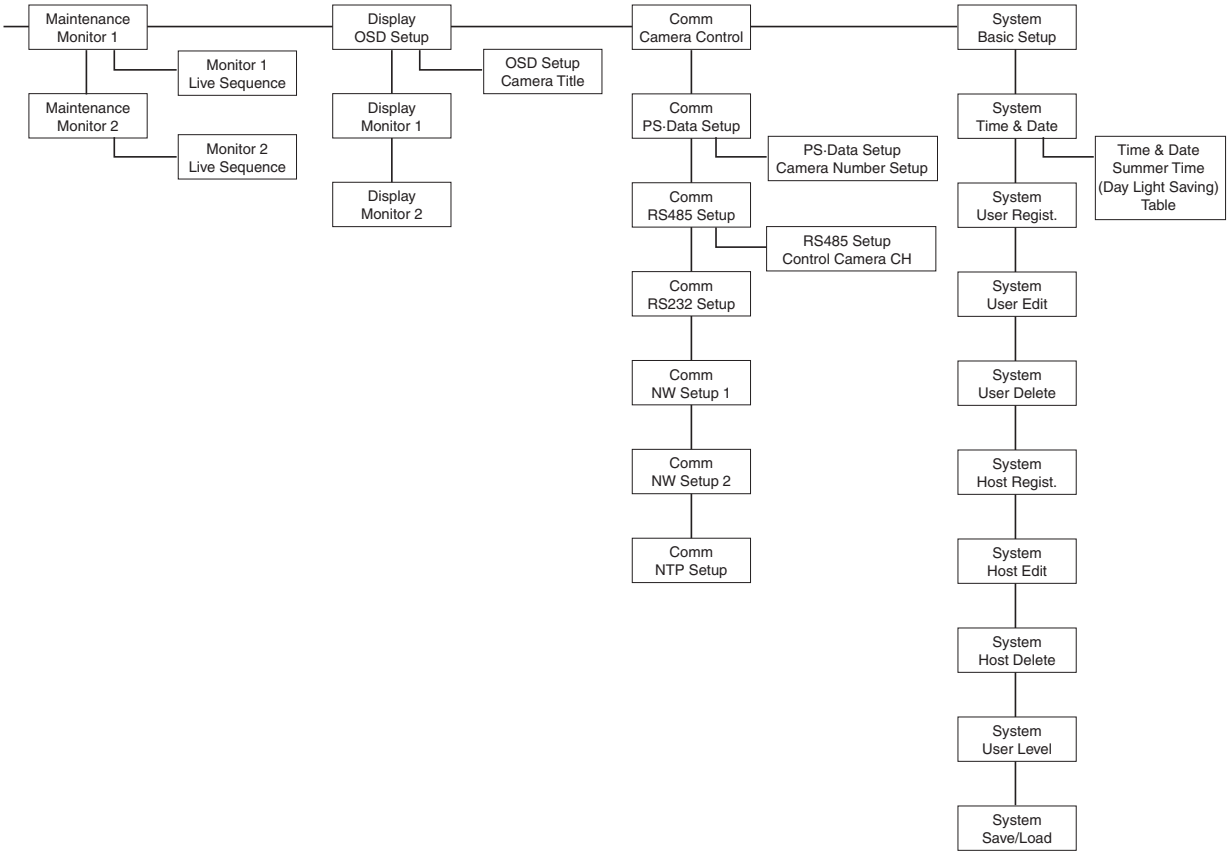
Item	Transmission command (ASCII)	Response command (ASCII)	Parameter (ASCII)
Record information inquiry	ZGP:rrrrrrrrrrrrrrr	ZGP:rrrrrrrrrrrrrrr: ccc:q:nnnn:yyyymmdd hhnnss:nnss:t:ssssss	rrrrrrrrrrrrrrr: Record number ccc: Camera CH q: picture quality (0 (Very Fine), 1 (Fine), 2 (Normal), 3 (Extended)) nnnn: Recording rate yyyymmddhhnnss: Recording start date and time nnss: Recording total time t=0 Text included t=1 Text not included ssssss: Record size [KB]

Communication

Item	Transmission command (ASCII)	Response command (ASCII)	Parameter (ASCII)
Communication check	RCK	RCK	

FLOWCHART OF THE SETUP MENU





PARAMETERS AND THE DEFAULT SETTINGS OF THE SETUP MENU

These are the setting parameters and the default settings of the items on the SETUP MENU.
Refer to these as reference.

Setup Menu	Setup Item	Parameter	Default Setting
Maintenance			
Disk Info	Warning for Disk Life Time	10 000 h/20 000 h/30 000 h	30 000 h
	HDD Safety Mode	ON/OFF	OFF
Disk End Mode	Normal Recording Area	CONTINUE/STOP	CONTINUE
	Event Recording Area	CONTINUE/STOP	CONTINUE
	Copy Area	CONTINUE/STOP	STOP
	COPY1	CONTINUE/STOP	STOP
	COPY2	CONTINUE/STOP	STOP
Disk Capacity	Normal Recording Area	OFF/1 %/2 %/···/10 %	10 %
	Event Recording Area	OFF/1 %/2 %/···/10 %	10 %
	Copy Area	OFF/1 %/2 %/···/10 %	10 %
	COPY1	OFF/1 %/2 %/···/10 %	10 %
	COPY2	OFF/1 %/2 %/···/10 %	10 %
Data Delete	Auto Delete	OFF/1DAY/2DAYS/···.../10DAYS/14DAYS/ 30DAYS/45DAYS/60DAYS/90DAYS/ 120DAYS/150DAYS/180DAYS	OFF
Recording			
REC Setup	Recording	ON/OFF	ON
	Power ON Manual REC	ON/OFF	OFF
	Manual Recording Channel	MON2/ALL	ALL
	Color Mode	COLOR FINE/COLOR STD/B/W	COLOR STD
	Embedded REC(Title)	ON/OFF	ON
	Embedded REC(Time & Date)	ON/OFF	ON
	REC Priority	Manual REC/Schedule REC/Event REC	1: Event REC 2: Manual REC 3: Schedule REC
	Audio Allocation	HD316: OFF/CAM1/CAM2.....CAM16 HD309: OFF/CAM1/.....CAM9	AUDIO1 to 4: OFF
Emergency REC	Resolution	FRAME 3D ON/FRAME 3D OFF/FIELD/SIF	FIELD
	Recording Time	1 s/2 s/..../10 s/20 s/30 s/1 m/2 m/..../10 m/ 20 m/30 m/40 m/50 m/60 m/MANUAL/ CONTINUE	10 s
	Recording Rate and Quality	Recording rate: 1 ips/2 ips/3 ips/5 ips/6 ips/	
		7.5 ips/10 ips/15 ips/30 ips/60 ips	
		Quality: SFA/SFB/FQA/FQB/NQA/NQB/	
		EXA/EXB	Recording rate: 3 ips
			Quality: SFA
	Auto Copy	OFF/ON	OFF

Setup Menu	Setup Item	Parameter	Default Setting
Event			
Event Setup	Alarm Output	OFF/1 s/2 s/...../30 s/40 s/50 s/1 m/ 2 m/...../5 m/EXT	 VMD: OFF Video Loss: 2 s Terminal Command Alarm: 2 s
	Output Terminal	HD316: TRM1/TRM2/...../TRM16 HD309: TRM1/TRM2/...../TRM9	
	Buzzer	OFF/1 s/2 s/...../30 s/40 s/50 s/1 m/ 2 m/...../5 m/EXT	VMD: OFF Video Loss: 2 s Terminal Command Alarm: 2 s
	Monitor1 Action	HD316: OFF/CAM1/CAM2/...../CAM16 HD309: OFF/CAM1/CAM2/...../CAM9	VMD: OFF Video Loss: Camera channel with a video loss occurrence Terminal Command Alarm: Same number for camera channel number and alarm number
	Monitor2 Action	HD316: OFF/CAM1/CAM2/...../CAM16 HD309: OFF/CAM1/CAM2/...../CAM9	VMD: OFF Video Loss: Camera channel with a video loss occurrence Terminal Command Alarm: Same number for camera channel number and alarm number
VMD Setup	(SETUP AREA)	-	-
	(SETUP ALL AREA)	-	-
	(DELETE AREA)	-	-
	(DELETE ALL AREA)	-	-
	(SENSITIVITY)	-	-
	(VMD MODE)	-	-
	(EXIT)	-	-
Alarm Setup	Alarm Auto Reset	OFF/1 s/2 s/...../30 s/40 s/50 s/1 m/2 m/3 m/ 4 m/5 m	OFF
	Alarm Disarm Time	2 s/3 s/...../10 s	2 s
Terminal Setup	Terminal Setup	N.O./N.C.	N.O.
Schedule			
Time Table	Period	12:00AM to 12:00AM	12:00AM to 12:00AM (Everyday/Time zone1) --:-- to --:-- (Except above)
	REC PROGRAM	PROG1/PROG2/PROG3/PROG4	PROG1
	EVENT PROGRAM	PROG1/PROG2/PROG3/PROG4	PROG1
	FTP SEND BY PERIODIC TIMER	ON/OFF	OFF
	ERROR REPORT MAIL	ON/OFF	OFF
	WARNING REPORT MAIL	ON/OFF	OFF
	NW BANDWIDTH CONTROL	OFF/32kbps/64kbps/128kbps/256kbps/ 512kbps/1024kbps/2Mbps/5Mbps/10Mbps	OFF
	Resolution	FRAME 3D ON/FRAME 3D OFF/FIELD/FRAME	FIELD
REC PROGRAM	RATE	OFF/2 ips/3 ips/5 ips/6 ips/7.5 ips/10 ips/ 15 ips/30 ips/60 ips	Manual REC: 15 ips Schedule REC: 15 ips Event REC: 30 ips
	RATE	OFF/AUTO/0.1 ips/0.2 ips/0.3 ips/0.4 ips/ 0.5 ips/1 ips/2 ips/3 ips/5 ips/6 ips/7.5 ips/ 10 ips/15 ips/30 ips/60 ips	MANUAL: AUTO SCHEDULE: AUTO EVENT (PRE): 1 ips EVENT (POST): 1 ips
	QUALITY	SFA/SFB/FQA/FQB/NQA/NQB/EXA/EXB	SFA
	DURATION (TIME for the unit)	1 s/2 s/...../10 s/20 s/30 s/1 m/2 m,/...../ 10 m/20 m/...../60 m/MANUAL/CONTINUE	EVENT (PRE): 10 s EVENT (POST): 30 s

Setup Menu	Setup Item	Parameter	Default Setting
EVENT PROGRAM	Action Mode (The unit)	ALARM/ACT DET	ALARM
	REC CH	ON/OFF	ON
	Auto Copy	ON/OFF	OFF
	Preset Position	--/1/2/...../64	--
	Serial Notice	ON/OFF	OFF
	Mail Notice	ON/OFF	OFF
	FTP Alarm Sending	ON/OFF	OFF
Special Days	DATE	1/1 to 12/31	--
	Mode	MON/TUE/WED/THU/FRI/SAT/SUN	--

Switcher

Monitor1	Live Sequence	[Operating with the buttons of the unit] 1/2/...../15/16/1-4/5-8/9-12/13-16/1-9/10-16/-- [Operating via a network] CAM1/CAM2/...../CAM16/QUAD1-4/QUAD5-8/ QUAD9-12/QUAD13-16/9SCREEN1-9/ 9SCREEN10-16/-- --/1/2/...../64 1 s/2 s/...../30 s	HD316: STEP1: CAM1, STEP2: CAM2, ... STEP16: CAM16 HD309: STEP1: CAM1, STEP2: CAM2, ... STEP9:CAM9 -- 2 s
	Sequence Timing	INT/EXT/MON2	INT
	Auto Skip	ON/OFF	OFF
	Login Screen	CAM1/CAM2/...../CAM16/QUAD1-4/QUAD5-8/ QUAD9-12/QUAD13-16/7SCREEN/9SCREEN1-9/ 9SCREEN10-16/10SCREEN/13SCREEN/ 16SCREEN/SEQ/--	16SCREEN
	Secret View	ON/OFF	OFF
Monitor2	Live Sequence	[Operating with the buttons of the unit] 1/2/...../15/16/1-4/5-8/9-12/13-16/1-9/10-16/-- [Operating via a network] CAM1/CAM2/...../CAM16/QUAD1-4/QUAD5-8/ QUAD9-12/QUAD13-16/9SCREEN1-9/ 9SCREEN10-16/-- --/1/2/...../64 1 s/2 s/...../30 s	HD316: STEP1: CAM1, STEP2: CAM2, ...STEP16:CAM16 HD309: STEP1: CAM1, STEP2: CAM2, ... STEP9:CAM9 -- 2 s
	Sequence Timing	INT/EXT	INT
	Auto Skip	ON/OFF	OFF
	Login Screen	CAM1/CAM2/...../CAM16/QUAD1-4/QUAD5-8/	QUAD1-4
		CAM1/CAM2/...../CAM16/QUAD1-4/QUAD5-8/ QUAD9-12/QUAD13-16/7SCREEN/9SCREEN1-9/ 9SCREEN10-16/10SCREEN/13SCREEN/ 16SCREEN/SEQ/--	

Display

OSD Setup	Time & Date Display Position	L-UPPER/R-UPPER/L-LOWER/R-LOWER	L-UPPER
	Camera Title Display Position	L-UPPER/R-UPPER/L-LOWER/R-LOWER/ CENTER	R-LOWER
	Line Color on the Multi Screen	WHITE/GRAY/BLACK	WHITE
Monitor1	Time & Date Display	ON/OFF	ON
	Camera Title Display	ON/OFF	ON
	Alarm Display	ON/OFF	ON
Monitor2	Display Mode	MODE1/MODE2/MODE3	MODE1
	T&D and Status Display Position	UPPER/LOWER	LOWER
	Camera Title Display	ON/OFF	ON

Setup Menu	Setup Item	Parameter	Default Setting
Com			
Camera Control	COMP	S/M/L	HD316: CAM1to CAM8: S HD309: CAM1 to CAM6: S
	TYPE	HD316: CAM1 to CAM8: COAX/RS485/OFF, CAM9 to CAM12: RS485/PSD/OFF, CAM13 to CAM16: RS485/PSD/OFF HD309: CAM1 to CAM6: COAX/RS485/OFF, CAM7 to CAM9: RS485/PSD/OFF	HD316: CAM1 to CAM8: COAX, CAM9 to CAM12: RS485, CAM13 to CAM16: RS485 HD309: CAM1 to CAM6: COAX, CAM7 to CAM9: RS485
PS·Data Setup	Unit Address(System)	001 to 099	001
	Unit Address(Controller)	001 to 099	001
	Cascade	ON/OFF	OFF
	Baud Rate	2 400/4 800/9 600/19 200/38 400	9 600
	Data Bit	8	8
	Parity	NONE/EVEN/ODD	NONE
	Stop Bit	1/2	1
	Retry Timing	OFF/100 ms/200 ms/400 ms/1000 ms/	OFF
	Alarm Data	OFF/0 s/1 s/5 s	1 s
	Camera Number Setup	001 to 099	HD316: 1: 001 to 16: 016 HD309: 1: 001 to 9: 009
RS485 Setup	Baud Rate	4 800/9 600/19 200	9 600
	Control Camera CH	PORT1/PORT2	HD316: CAM1 to CAM8: PORT1, CAM9 to CAM16: PORT2 HD309: CAM1 to CAM9: PORT1
	Data Bit	8	8
	Parity	NONE	NONE
	Stop Bit	1	1
RS232C Setup	Unit Address(System)	001 to 099	001
	Baud Rate	9 600/19 200/38 400	9 600
	Data Bit	7/8	8
	Parity	NONE/EVEN/ODD	NONE
	Stop Bit	1/2	1
	Retry Timing	OFF/100 ms/200 ms/400 ms/1000 ms/	OFF
NW Setup1	HTTP Port Number	00000 to 65535	00080
	User Authentication	ON/OFF	OFF
	Host Authentication	ON/OFF	OFF
	Line Speed	AUTO	AUTO
	Live Video Quality	FQB	FQB
	Video Rate	FAST/MIDDLE/SLOW/VERY SLOW	MIDDLE
NW Setup2	DHCP	ON/OFF	OFF
	IP Address	000.000.000.000 to 255.255.255.255	192.168.0.250
	Subnet Mask	000.000.000.000 to 255.255.255.255	255.255.255.000
	Gateway	000.000.000.000 to 255.255.255.255	192.168.000.001
	DNS	ON/OFF	OFF
	Primary	000.000.000.000 to 255.255.255.255	000.000.000.000
	Secondary	000.000.000.000 to 255.255.255.255	000.000.000.000
	DDNS	ON/OFF	OFF
	User Name	-	-
	User Password	-	-
	Access Interval	10 m/30 m/1 h/6 h/24 h	1 h
	Host Name	-	HD316: HD316 HD309: HD309
	Domain Name	-	localdomain

Setup Menu	Setup Item	Parameter	Default Setting
Network SNMP Setup	COMMUNITY	-	public
	CONTACT	-	-
	SYSTEM NAME	-	-
	LOCATION	-	-
NTP Setup	Time Adjustment	ON/OFF	OFF
	Time Zone	GMT-12:00/GMT-11:00/...../GMT-4:00/GMT-3:30/ GMT-3:00/...../GMT-1:00/GMT 0:00/GMT+1:00/ GMT+2:00/...../GMT+9:00/GMT+9:30/ GMT+10:00/...../GMT+13:00	GMT-5:00
	NTP Server Address	-	-
	Refresh Interval	1 h/2 h/6 h/12 h/24 h	6 h
Network FTP Setup	FTP Server Address	-	-
	User Name	-	-
	User Password	-	-
	Mode	SEQUENTIAL/PASSIVE	SEQUENTIAL
	Server Directory	-	-
	File Name	TIME & DATE BASE/SERIAL NUMBER	TIME & DATE BASE
	Interval	-	01 s
	Channel to Send	CAM1 to CAM16	-
	Server Directory	-	-
	File Name	TIME & DATE BASE/SERIAL NUMBER	TIME & DATE BASE
	Duration-Pre	OFF/1 s/2 s/3 s/4 s/5 s/6 s/7 s/8 s/9 s/10 s	OFF
	Duration-Post	OFF/1 s/2 s/3 s/4 s/5 s/6 s/7 s/8 s/9 s/10 s	5 s
Network Mail Setup	Attach Alarm Image	ON/OFF	OFF
	Mail Server Address	-	-
	Send to	-	-
	Address1	-	-
	From Address	-	-
	POP before SMTP	ON/OFF	OFF
	POP Server Address	-	-
	User Name	-	-
	User Password	-	-

System

Basic Setup	ADMIN Password	-	12345
	PSD User	-	ADMIN
	Auto Login	ON/OFF	ON
	Auto Login User	-	ADMIN
	Auto Logout	ON/OFF	OFF
	Priority	Follow the priority./Pre-priority/Post-priority	Follow the priority.
	"GO TO LAST" before	5 s/10 s/30 s/1 m/5 m	5 s
	Language	JAPANESE/ENGLISH/FRANÇAIS/ESPAÑOL/ DEUTSCH/ITALIANO	ENGLISH
	Beep (Operation)	ON/OFF	ON
	Buzzer (Error)	OFF/1 s/...../30 s/40 s/50 s/1 m/...../5 m/EXT	2 s
	Shutdown Time	10 s/20 s/30 s/1 m/2 m/3 m/4 m/5 m	10 s
	Auto Copy	ON/OFF	OFF

Setup Menu	Setup Item	Parameter	Default Setting
Time & Date	Date Format	YY.MM.DD/MMM.DD.YY/DD.MMM.YY	MMM.DD.YY
	Time Format	24 h/12 h	12 h
	Auto Adjust Time	ON/OFF	OFF
	Master Time	0:00/1:00/...../23:00	0:00
	Summer Time(Day Light Saving)	ON/OFF/AUTO	OFF
	Summer Time(Day Light Saving)		
	Table	-	-
User Regist.	User Name	-	-
User Edit	Password	-	-
User Delete	Level	1/2/3	1
	Priority	1/2/...../16	1
	Default Screen	CAM1/CAM2/...../CAM16/QUAD1-4/QUAD5-8/ QUAD9-12/QUAD13-16/7SCREEN/9SCREEN1-9/ 9SCREEN10-16/10SCREEN/13SCREEN/ 16SCREEN/SEQ	CAM1
	Camera Partitioning	--/View/View/Operate	View/Operate
Host Regist.	Host IP Address	-	-
Host Edit	Level	1/2/3	1
Host Delete	Priority	1/2/...../16	1
	Default Screen	CAM1/CAM2/...../CAM16/QUAD1-4/QUAD5-8/ QUAD9-12/QUAD13-16/7SCREEN/9SCREEN1-9/ 9SCREEN10-16/10SCREEN/13SCREEN/ 16SCREEN/SEQ	CAM1
	Camera Partitioning	--/View/View/Operate	View/Operate
User Level	WJ-HD300 Setup	LV1,LV2,LV3	LV1
	WJ-HD300 Setup Status	LV1,LV2,LV3	LV1,LV2
	Camera Setup	LV1,LV2,LV3	LV1
	Event Log Status	LV1,LV2,LV3	LV1,LV2
	Access Log Status	LV1,LV2,LV3	LV1,LV2
	Error Log Status	LV1,LV2,LV3	LV1,LV2
	Alarm Reset	LV1,LV2,LV3	LV1,LV2
	Alarm Suspended Time	LV1,LV2,LV3	LV1
	Copy	LV1,LV2,LV3	LV1
	Normal Recording Erase	LV1,LV2,LV3	LV1
	Event Recording Erase	LV1,LV2,LV3	LV1
	Manual REC Operation	LV1,LV2,LV3	LV1,LV2
	Playback Operation	LV1,LV2,LV3	LV1,LV2,LV3
	N/W Access	LV1,LV2,LV3	LV1,LV2,LV3

TROUBLESHOOTING

Check to see the following before request for repair.
Contact your dealer if a trouble cannot be solved even after checking and trying solution.

Problem	Check item/Remedy	Page
Power is not turned on.	• Check if the power plug is surely connected to the AC outlet.	–
	• Check if the power cord is surely inserted into the power socket of the unit.	–
The HDD SAFETY MODE window is displayed after turning on the power of the unit.	• The HDD SAFETY MODE is set to ON. In this case, set the HDD SAFETY MODE to OFF.	Refer to p. 67.
No camera image is displayed on MON 1, MON 2, and the VGA monitor	• Check if the lens covers of the cameras have been removed.	–
	• Check if the power is supplied to cameras and connected devices.	–
	• Check if the cable connections are correct.	Refer to p. 69.
	• Check the brightness and contrast settings of monitors.	–
	• Can the users display camera images on monitors? Check the level settings of users logging in.	Refer to p. 122 and 124.
The log-in menu does not appear even if you press the button of the unit.	• Check if no user has logged in with the system controller.	–
The camera image is dim.	• Check if dust may not be sticking on the camera lens.	–
Cannot open SETUP MENU.	• Check the level settings of users logging in. Can the users display SETUP MENU on monitors?	Refer to p. 122 and 124.
	• Check if the monitor 1 is used to display the SETUP MENU. The SETUP MENU cannot be displayed on the monitor 1.	Refer to page 11.

Problem	Check item/Remedy	Page
Cannot start recording.	• Check if the HDD has an available disk space.	Refer to p. 94.
	• Check if the recording setup is set to ON.	Refer to p. 97.
	• Check the schedule settings.	Refer to p. 104.
	• Check the recording priority settings.	Refer to p. 97.
Cannot record the SETUP MENU of a matrix switcher	• When the setting menu is displayed by non-interlace signal, the setting menu may be unable to function normally. Since the setting menu of the matrix switcher is displayed by non-interlace signal, recording or displaying with this unit may be impossible.	–
Cannot playback images.	• Check if images have been recorded in the HDD.	Refer to p. 28.
	• Check the level settings of users logging in. Can the users record images?	Refer to p. 122 and 124.
	• Check the level settings of users logging in. Can the users display camera images on monitors?	Refer to p. 122 and 124.
Cannot control cameras.	• Check the connection of camera you are going to control. Coaxial communication control is available for cameras connected to VIDEO IN 1 to 8 for WJ-HD316 (1 to 6 for the WJ-HD309).	Refer to p. 69.
	• Check if the camera you are going to control is a combination camera.	Refer to p. 69.
	• Check the camera control settings.	Refer to p. 115.
	• Check the level settings of users logging in. Can the users control cameras?	Refer to p. 122 and 124.
	• Check the BUSY indicator. When the indicator is lighting, a higher-priority user is controlling cameras. You cannot control cameras until the indicator goes out.	Refer to p. 9.

Problem	Check item/Remedy	Page
Alarm operations are not activated.	• Check if alarm input signals are properly input to the ALARM or ALARM/CONTROL at the rear panel.	Refer to p. 82 and 86.
	• Check the settings of the ALARM connector.	Refer to p. 86.
	• Check if the operation mode is set to ALARM (alarm mode).	Refer to p. 106.
"VIDEO LOSS" appears on the monitor.	• Check the camera connections.	Refer to p. 69.
	• If the camera connections are proper, refer to the dealer. Cable wires may be snapped or the unit may have trouble.	–
"THERMAL" appears on the monitor.	• Check if the ambient operating temperature is between +5 °C and +45 °C. • When the inside of unit exceeds 45 °C, "THERMAL" may appear even within the ambient temperature mentioned above. • If "THERMAL" frequently appear on monitors, refer to the dealer. The unit may have trouble.	Refer to p. 6 and 14.
The clock does not keep correct time.	• Check if the built-in backup battery has been charged enough. If not so, supply power to the unit for 48 hours or more to recharge the battery.	Refer to p. 6.
	• Check if the built-in backup battery has been worn out. The battery can endure for approx. 5 years. (The endurance may differ depending on conditions.)	Refer to p. 6.
When you power on the unit, HDD DISK MENU is displayed.	• Check if HDDs were added or removed. If so, the HDD DISK MENU will be displayed automatically.	Refer to p. 130.
	• If the HDD DISK MENU is displayed even though no HDDs were added or removed, Refer to the dealer. The HDD may have trouble.	–

Problem	Check item/Remedy	Page
The additional disk space of HDD is not displayed.	• Check if "Disk End Mode" is set to STOP.	Refer to p. 94.
	• Check if there is a partition in the HDD.	–
The available disk space of HDD is not displayed on the right bar.	• Check if the "Disk End Mode" is set to STOP.	Refer to p. 94.
	• Check if there is a partition in the HDD.	–
Cannot establish the connection via the network.	• Check the network settings of the unit and PC.	Refer to the Network Setup Instructions (PDF).
	• Check the host registration setting. When host authentication is set to ON, you cannot establish the connection from computers other than the PC registered as the host.	Refer to p. 123.
Response or Image update takes time.	• Check if the network is crowded.	–

Inspect the power cord, power plug and connectors periodically.

The power cord insulation is damaged.	• The power cord, plug and connectors are worn out. This may result in electric shock or a fire. Unplug the power plug from the AC outlet immediately, and refer to qualified service personnel.
The power cord, plug and connectors get hot during the use.	
The power cord gets heat when bent or stretched.	

SPECIFICATION

General

Power source:	120 V AC, 60 Hz
Power consumption	85 W
Ambient operating temperature	+5 °C to +45 °C
Ambient operating humidity	Less than 90 %
Dimensions	420 mm (W) X 88 mm (H) X 350 mm (D) [16-9/16" (W) X 3-7/16" (H) X 13-3/4" (D)] (excluding rubber feet and projections)
Weight	9.5 kg (21 lbs.)

Input/Output

Video	Video input connectors	1 V [P-P] / 75 Ω, with auto termination loop-thru, vertical timing pulse multiplexed, x8 (1 to 8 CH) (BNC)
		1 V [P-P] / 75 Ω, with auto-termination loop-thru, x8 (9 to 16 CH) (BNC)
	Cascade input connector	1 V [P-P] / 75 Ω (BNC)
	Video output connectors	1 V [P-P] / 75 Ω, active loop-thru output, x8 (1 to 8 CH) (BNC)*1 1 V [P-P] / 75 Ω, active loop-thru output, x8 (9 to 16 CH) (BNC)
	Monitor output connectors	1 V [P-P] / 75 Ω, x2 (BNC)
	Monitor output connector (VGA)	RGB output, x1 (15-pin D-sub)
	S-video output connector	Y = 1 V [P-P] / 75 Ω, C=0.286 V [P-P] / 75 Ω, x1 (S-video output connector)
	Video output connector (front panel)	1 V [P-P] / 75 Ω, x1 (RCA pin)
Audio	Audio input connectors	–10 dB, 10 KΩ, x4 (RCA pin)
	Audio output connectors	–10 dB, 600 Ω, unbalanced, x2 (RCA pin)
Others	Expansion connector	High-speed serial interface, 480 Mbps (theoretical value), x1
	Copy connectors	High-speed serial interface, 480 Mbps (theoretical value), x2
	Control connectors	Emergency recording input*2, additional space warning output*3 (for devices connected to copy connectors), HDD trouble output*3, camera trouble output*3, trouble output*3, electricity failure recovery completion output*4, time adjust input/output*5, sequence switching input/output*5, electricity failure detection input*2, external recording mode switching*2 (25-pin D-sub) , +5 V output *7
	Alarm port	1 to 8 CH alarm input*6, 1 to 16 CH alarm input*2, 1 to 16 alarm output*3, alarm recovery input*2, alarm suspension input*5 (25-pin D-sub)
	RS-485 ports	RS-485 (full duplex/half duplex*8), x2 (RJ-11)
	DATA ports	RS-485, x2 (RJ-11)
	SERIAL connector	RS-232C, x1 (9-pin D-sub)
	Ethernet port	10 Base-T/100 Base-Tx (RJ-45)

*1 When power is not supplied, video output signal was not sent from the unit even if video input signal is supplied.
*2 Non-voltage N.O. Contact, 100 mA, +5 V pull-up
*3 Open collector output, maximum under conditions of 24 V DC and 100 mA or less
*4 High (+12 V, 6.3 mA)
*5 30 KΩ, 5 V pull-up, –100 mA, N.O. Contact
*6 5 V pull-up, –100 mA, Non-voltage N.O. Contact input
*7 200 mA at maximum
*8 Changeable with the mode switch

STANDARD ACCESSORIES

CD-ROM* 1
Operating Instructions (this manual) 1
Warranty 1

The following are for installation:
Power Cord 1
Rack Mounting Bracket 2
Screw for Rack Mounting Bracket 4
Cable Clamp 1
Screw for Cable Clamp 1
Hard Disk Drive Fixing Screw 4

*The following are included on the CD-ROM:
Viewer software
Plug-in software
Network Operating Instructions (PDF)
Network Setup Operations (PDF)

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